

THE *Chemist*

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THE AMERICAN INSTITUTE OF CHEMISTS, INC.

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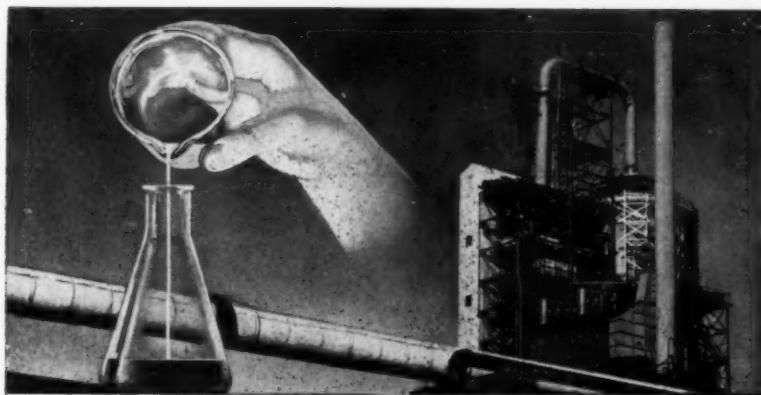


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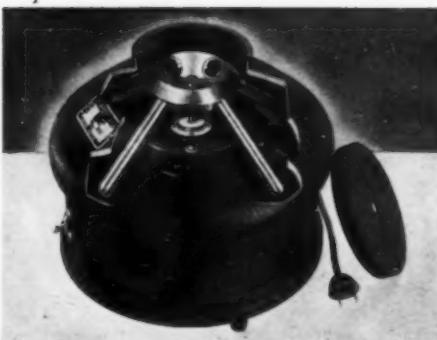
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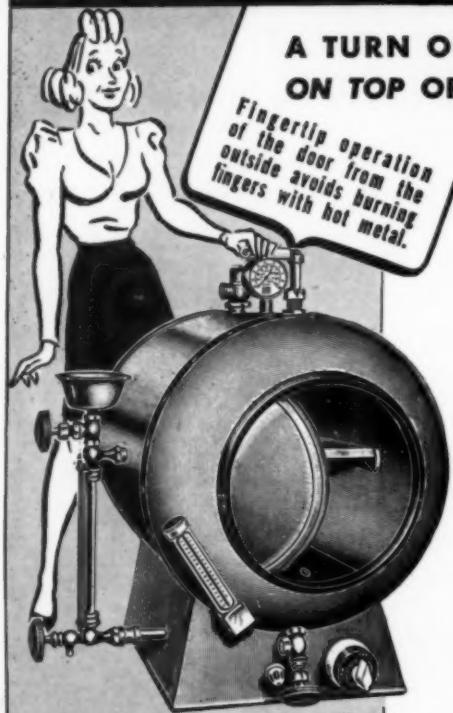
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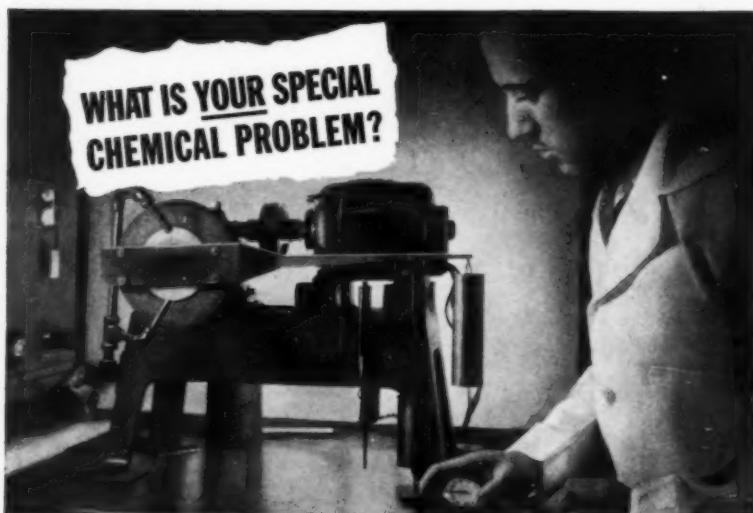
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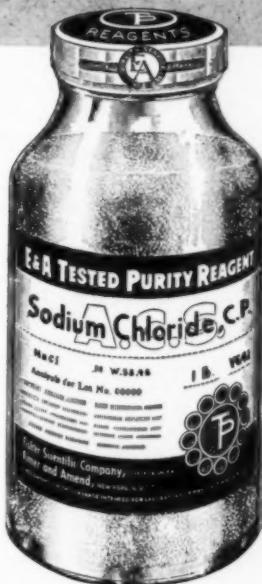
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The Meaning of Freedom

Willard H. Dow

EVERYONE, everywhere is trying to look into the future. The world about us is being torn into shreds and we do not know how or by whom it may be reshaped. Countless millions are longing for what they call security and seem willing to pay any price for any package labeled security. The sands of man's belief in himself as a being created in the image of God are running out. Men and women are trying to escape today by dreaming of tomorrow. Tonight I shall not talk about post-war planning or post-war hoping.

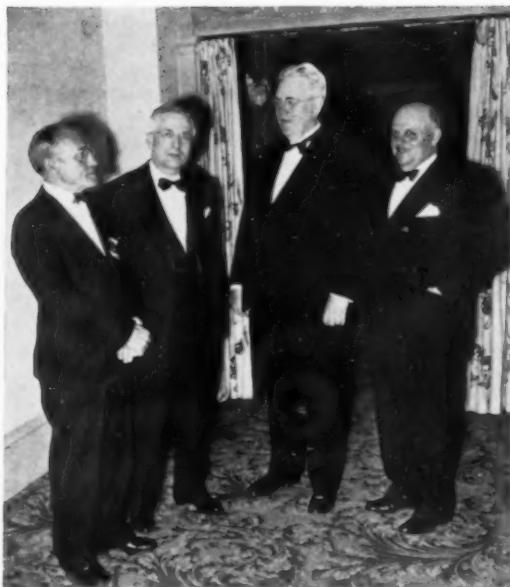
Instead, I am going to ask you to explore with me the simple elements on which we of America have founded our lives, to the end of discovering whether or not, in much of our planning, we have not overlooked that one element without which our plans will be futile. I am going to ask you to consider freedom and what it means. And I am also going to suggest to those who think in such terms that freedom also has a cash value. But let us think in terms of the dignity of man and not of messes of pottage.

Let us be high-brow in order to see

if in being low-brow—call it practical—we are not in danger of missing the very thing that we are trying to get. To be concrete. How many of us are really willing to accept the challenge of individual responsibility and make our own futures?

How many of us, I wonder, are watching for a change to break out of the lock step of thought in which we as a people are now marching and to do a little walking at our own gait? And how many of us are just watchfully waiting for the line to break of itself, or, better yet, to be broken by someone we elect or select for that purpose? In other words, how many of us have the burning passion to step out for freedom? And how many of us are beginning to think of freedom as something we would very much like to have given to us? There is a whale of a difference between the two approaches.

Freedom is not a condition of life. It is the absence of a condition of life. The moment we think of it as a condition, we recognize—no matter what we may say to the contrary—a super-power which can tell us not only what



Left to right: Dr. Gustav Egloff, Dr. Willard H. Dow, Dr. Bradley Dewey, and Sidney D. Kirkpatrick.

is and what is not freedom, but also just how and why we must like it. I am reminded of that marshal of Napoleon's who, entering a captured town, summoned the citizens to the market-place. "My friends," he declared, "I bring you the perfect freedom. But be prudent. I shall shoot the first man who stirs."

Take the slogan "free enterprise." Everyone seems to have gone overboard for free enterprise. But it appears that the securing of free enterprise is a very complicated matter, and

I should hate to be given the task of reducing some of the prescriptions I read to an algebraic formula. "Free enterprise," if it is to be anything but a name, is not a permitted way of business. It arises out of an absence of a permitted way of business.

We seem to be forgetting that a government cannot grant freedom of religion or of speech or of enterprise. When we speak of granting or receiving freedom, we exactly reverse the processes of thought that moved those great men, the Founding Fathers, to

THE MEANING OF FREEDOM

evolve for themselves and their posterity—that is, for us—the Constitution and the Bill of Rights. We of America never wrung a Magna Carta from a king. Our forefathers fought and gained the right to think and act for themselves. The Declaration of Independence was a living, fighting thing and not just a nice resolution casually adopted at a convention. We did not derive our freedom from any government.

On the contrary, we set up a government and lodged with it only such small parts of our freedom as we thought necessary for the preservation of a reasonable order. Our wise Fathers were so fearful that even these little trusteeships of freedom might be abused, that they delegated supreme power to no man and to no group of men, in the fervent hope that no government could ever be established as a thing of itself and apart from the people.

We today, without thought of our words, speak of the "Government" or of "Washington" as a ruling power, and there are many who would propitiate that power in much the way that the courtiers of old are said to have fawned on their monarchs. Our forefathers simply would not have known how to do that sort of thing. They did not depend upon a government. The government depended on them.

They derived their freedom to worship, to speak and to carry on from Almighty God and not from anything

fashioned by man.

The utter reversal that has come about in our manner of thinking—a reversal which holds much evil and no good—is being driven in by a parade of authorities through committee rooms, through lecture halls and even through pulpits, solemnly warning us and exhorting us not to be hasty in getting rid of our wartime controls so as not to lapse into another dreadful era of tooth and claw.

We are being warned against the dangers of freedom. We are being openly counseled to follow the cultures and even the diets of nations that never knew freedom. In the 'twenties, foreign missions were inspecting us to see how and why we managed so well. Now, in the 'forties, we are being taught that whatever we did in the past as a people was crude and quite wrong and that our future lies in being something other than American.

All of which, to me, is rot, for I do not happen to be one of those who believe that the United States is a failure. And, although we have a lot to learn and, if we keep our balance, we shall always have a lot to learn, I think that what we have to learn from abroad is in the way of what not to do and not in the way of what to do. For if the cultures of Europe and Asia have brought them to their present pass, we have nothing to learn from them.

So I am thinking and I would ask

you to think about the moral basis on which this country is going to operate after the war. We hear a great deal about post-war planning, full production and full employment. These questions are all materialistic. But what about the individual? Where is he going to get off? Or has he vanished entirely?

We are in an era of controlled economy. It is said, and for the purposes of this evening I will grant, that these controls are needed for the war. We are being told that controls are not in the American spirit, but that we must ease out of them and that chaos would follow their sudden ending. Some of those who advise us to go slowly have records of achievement in business and finance and therefore would seem to speak out of experience.

But by the very nature of our present controls we cannot ease out of them. We can only ease into permanent control and the kind of society in which the individual never has a chance to express himself. For one control breeds another. We have already seen how quickly price control leads to subsidy. And also we are witnessing how price control brings artificial gluts and shortages.

Every housewife is becoming a ration-coupon speculator and in a measurable time we shall have to eat on a fixed quantity schedule. The next step must be forced labor, for in a controlled society it is out of the question for the individual to determine

either the kind or the amount of labor he will contribute. Then we shall have exactly the same sort of freedom from want and from fear that the lifer enjoys in his cell.

For, although control is not a harsh word, economic control by its very nature must be harsh, because really it means the substituting of bureaucratic discretion and in the end the individual must be deprived of his responsibility and his dignity. We shall have to decide whether we want to be Americans and have government of our own choosing or be something else. There is no half-way point in human dignity and responsibility. It either is or is not.

The control mania—I cannot use a nicer word—has struck the sciences. Every few years a group of sincere and good men, as in a cycle, comes out with the recommendation that all advancement should be in the control of a single group of scientists.

The decisions recommended by them would govern our future development. Chemistry and physics offer possibly greater opportunity for the expression of new ideas than any of the other sciences. Each scientific brain has an approach or a way of looking at things that is entirely its own. Using this brain power can bring about greater results than could possibly be achieved by a wiser Solomon than has ever yet appeared.

Can you conceive what would happen if any group of scientists—no mat-

THE MEANING OF FREEDOM

ter how able—were made the masters of research and discovery—if their composite experience were to make all the decisions? We discard the very thought as nonsense.

An idea, no matter how weird, may grow into a constructive thought and enlarge to a new approach. Then a new industry is aborning. Experience, ideas, research—all accumulate and produce a new approach or a new product or a new thought. Each born-ing is cherished by the one seeing the vision and is often communicated to others, but these visions are things coming only to those who have prepared themselves to accept them.

My own experience in research is such that I would dread the day when the bright spark of the young man who is searching the infinite might find himself in a thought prison with a keeper—no matter how well-intentioned and sympathetic that keeper might be. You all know that the best known and ablest of our authorities turned down the making of the cyclotron as useless.

My company is making bromine from sea water, but, before finally getting under way, it was conclusively demonstrated, not only once but three times, that it could not be done. And lest I seem to be taking on airs, I will tell you that some years ago I maturely decided that, although the future of magnesium was unlimited, it would always be a specialty metal. But even at our present prices it is by

volume among the cheapest of metals. We have learned that if a research laboratory is to produce results, the men must be allowed the freedom to be a bit crazy. If we were to control closely, we would miss the great idea that is found only by those with the courage to be crazy.

Chemistry and physics stand out nobly in the modern world of science. They are ever ready to give much and to accept little in return—which is the reverse of the modern world where the tendency is to receive all and give little. We are now in a terrible war—a war of complete destruction or maybe even elimination.

Have we, as scientists, failed in our effort to humanity and permitted the operation of forces to work against instead of for civilization? Have we listened to the wrong teachers, to pedagogues of a wrong theology? Have we not been inspired by wrong thinking and got our quanta of energy confused with the molecules? Have we forgotten the only being worth remembering—the individual human being?

This is briefly what we have done. We have permitted the fostering of ideas our intelligence says are wrong. By pretending a knowledge we do not have, we have duped ourselves into false security. There is only one security and that grows out of the individual thinking for himself and that honestly and sincerely. This we know. But we are discarding all of our ex-

perience, traditions of past prosperity and our entire knowledge of success with individualism. We are, in short, discarding Americanism and all it stands for. That means we are discarding our moral basis.

There is much loose talk these days about after-the-war planning. In typical propaganda style, industry is held up as having the sole responsibility for taking care of all employment after the war is over. I, for one, do not believe this is possible and think it is just another scheme to dodge responsibility. For industry is always a servant and never a master. The responsibility is yours and mine. We must all make our contribution and resolve that there shall not be unemployment after the war. But we shall need to define what we mean by "employment" and by "unemployment." Everyone can be employed. But everyone cannot be employed at exactly the kind of job under exactly the conditions of wages and hours that he or she may want. And "full employment" comes perilously near to "directed" employment.

There is no "right to work" but there is a responsibility to work. We need to do some hard thinking about rights and responsibilities, for there cannot be a right without a responsibility nor a responsibility without a right. And that gets us right back to the individual.

In writing the Declaration of Independence and the Constitution, the

fathers of our country were moved by the unalterable purpose to free themselves and their posterity from the oppression of the Old World and elevate the individual to sovereign dignity. They believed that thus they were fulfilling the Will of God. They builded with imperishable stone.

The elemental situation has not changed from their day to ours. Instead of a country of a few million people, we have a country of one hundred and thirty million people. That means more and not less opportunity. The world around us is much greater than theirs because, where their frontiers were limited by the map, our frontiers are unmapped, for they are far off somewhere in the great new world of physical discovery. Nothing has happened to make necessary a change in our concept of individualism.

The upheaval which has come about in our manner of thinking is, I feel, due to two causes. One is the influence upon our basic thinking by European systems of thought generated by failure and the other is our neglect to cherish and foster the great freedom—the freedom of the ordinary, everyday American.

It is not easy for a nation to keep its freedom and history teaches us that many have failed. But there never was a freedom born like the American. Our job is to prepare and to guard that freedom so that the way to

THE MEANING OF FREEDOM

greater accomplishments may be opened. Our successes are small in contrast to that which will eventually be accomplished. Our efforts are good and bad building stones of the future. There is always much room out in front—room for all without crowding—and work for generations to come. Let us now dedicate ourselves to avoiding the stumbling blocks and the unnecessary delays on this road of progress.

We must once again take up the

belief that the only Divine Power is within man himself—he is the creation of God. If the American system has failed, it is because we, as individuals, have failed. In man alone can we find hope for a future. Whatever may be the seeming dangers of throwing off our controls and once more being Americans, they are as nothing in contrast to the dangers of being merely a tended herd. It all depends on whether we have what it takes. I think we have.

Willard H. Dow and the War Effort

Bradley Dewey

Rubber Director

A YEAR or so before the last war, my boss, Mr. S. A. Davis, Vice President of the American Sheet and Tinplate Company (then one of the big subsidiaries of the Steel Corporation), a man who was as fond of me as I of him, said to me, "Bradley, you chemists could run all of industry, if you only had a little common sense." I do not know today whether he was joking or not, but I could not help but accept his remark as a challenge.

A few years later came the first World War and with it, a few days after I joined up, came my first contact with the Dow Chemical Company. I shall never forget the friendliness and the forthrightness of Herbert Dow, Willard Dow's father,

when he took me through the plant, answered every question and offered every cooperation within his power towards the winning of the war. There were no reservations.

This visit with Willard Dow's father proved to me that there were exceptions to my former boss' thesis. Here was a brilliant chemist with business sense. The fact that he was an exception motivated my wanting to try to be one and my later decision to go into business with Charles Almy. It also led to my following with interest the career of his son, an honest-to-goodness chemist who has proven again that chemists can have common sense and that when they do they are outstanding executives.

With the background of his company's contribution to the last war, Dow came to this one after having lived through the transition period in which the organic chemist learned to work with the tools of the physical chemist and the chemical industry grew out of its batch,—or all too often "botch,"—process cradle to a continuous process manhood. This was an era in which only those alert to the new trends could hope to stay on top. It was an era in which tremendous chances had to be taken and mistakes in judgment could easily ruin any past earning power.

Willard was one who weighed the chances, made the right decisions and learned to use those magnificent new tools which have enabled process industries to do their part in World War II. Stop for a moment and consider where this country would be without light alloys, plastics, synthetic rubber and high-octane gasoline. Then realize that in many cases it was harder to make the raw materials than the products themselves.

Then think of the impossibility of our meeting the challenge of modern war were it not for the developments of the last ten years in four fields;—(1) the controlled use of high temperature hydrogenation and dehydrogenation catalysts; (2) the remote control by instrumentation of chemical processes; (3) the use of alloy steels in superheaters, cracking coils,

etc.; and (4) the use of welded piping and vessels and the field assembly of pre-fabricated units.

The Dow Chemical Company under the leadership of Willard Dow was pre-eminent in its recognition and use of all four of these. Its work with them from their inception placed it in a position where its powerful research laboratories and technical staff of over a thousand men were tied into a team which knew and was ready to use these tools. This team included men trained in practically every known modern science.

With this background it was inevitable that the Dow Chemical Company should be called upon to contribute much to the war effort. Willard Dow's problem was not to say "yes" but rather to know where and when to say "yes" and where and when to say "no." His company knew more than any company in this country, if not in the world, about the manufacture of magnesium and his company was courageous enough to say that it could make magnesium from sea water, which contains only a half of one per cent of magnesium chloride, at prices which would compete with aluminum. Many scoffed.

Many insisted that the country could not afford to put all of its eggs in one basket and must use other processes. Dow stood firm and today Dow process plants,—some financed by Dow, some financed by the Government—most managed by Dow,—have

WILLARD H. DOW AND THE WAR EFFORT

now made over 500 million pounds of magnesium or over $\frac{3}{4}$ of the country's output. Exclusive of depreciation, one of these plants is now making magnesium for 13 cents per pound and it is interesting to note that at this time when a great deal of producing capacity is no longer necessary, no Dow Plant has been shut down or seriously curtailed. As yet no other process has shown any ability to match Dow's costs.

With the background of experience in producing the styrene needed to make polystyrene resins, Dow put its experience at the command of the Government and Dow process plants are today making over $\frac{2}{3}$ of all of the styrene used for synthetic rubber. But these are not all of Dow's contributions to the war effort. Irrespective of plants built by others to Dow designs, they have built 58 different projects making over 35 separate products and costing over 200 million dollars—more than 50 million of which was financed by the company.

In approaching every decision Willard Dow held his organization to a policy that they could not do more than they had the organization and tools to work with. He would not allow the war effort to become an excuse to enter competitive fields—aluring as they might be when looked at through postwar glasses. He insisted that those things which Dow did must be done right. In persevering and hewing to the line of these policies

he aggravated some who did not understand his policies.

But, as the record stands today, every man who has come in contact with a Dow project knows that it has made good and those who know the Dow organization know that it has carried its full share of the load. Its record is a tribute to its Leader, Willard Dow.

Notwithstanding their main effort, Dow's organization has been ever ready to help others. Its research staff has been of inestimable value to many branches of the Army. Even now it is loaning an entire group of its crack operating men to help on a very difficult operating problem of the rubber program, for which it has no primary responsibility and from which it cannot obtain one cent of profit or benefit.

Over and above all this, Willard Dow himself, serving as a consultant to both the Chemical Warfare Service and to the Research and Development group of the Quartermaster Corps, has made himself available whenever called for. He has spent personally many days of his own time advising and helping with the solution of difficult problems. He has inspired younger men in the Services as he has inspired the loyal group around him.

Willard Dow's contributions to World War II are far from over but already they have proven not only his patriotism, but also his imagination, sound judgment, character and ability to lead as well as inspire others.

Willard Henry Dow - the Man

M. E. Putnam

Vice-president, the Dow Chemical Company

THE history of American industry during the past dozen years has been dominated by a vague unrest and a powerful desire to find and seek out a credo and a character of its own. In this country our industries, far more those of any other land, have been founded upon developing new and better products to meet the growing needs of millions of people. For the reason that the tremendous national machine must be fed by mass orders, so also has there been a growing demand on the part of the people as a whole for an understanding and a philosophy to interpret the tremendous new world of science and industry which has been opened to us.

In this search, no matter how diligent, we can find no answer, no reality and no guidance in foreign methods and experience. In the history of other countries there is no well-worn path, carefully marked and requiring no effort or thought which can serve for us as a guide to the future. There is no precedent to be found in the past. For this reason the answers that millions of people are asking must come from within ourselves and they

must be American answers. American industry has before it a solemn duty to interpret its meaning and significance to the people. This is a mighty challenge and a challenge that must be met if the great institution of free enterprise is long to survive.

One of the few men in this country who has met this challenge squarely and firmly and with no reserve on his part is Willard Dow.

If I should be obliged in a few words to state the most outstanding characteristic of Willard Dow, that I have observed in the thirty years I have known him, I think I should refer to his understanding of the meaning and necessity of cooperation in human affairs. Ever since I first knew him during his high school days here in Midland during the last war, this has been a basic trait, which has been an integral part of the growth and the success of the Dow Chemical Company.

Founded as it was on the dream of one man, Dr. Herbert Dow, the company through all its history has had to deal with intangibles, and the development of the chemistry of brine

WILLARD HENRY DOW—THE MAN

and the chemistry of sea water has rested fundamentally on a foundation of self-reliance and individual initiative. The Dow Chemical Company was conceived by one man, but it never could have been developed and expanded by one man's initiative alone, because over the course of the years, the work of the company has followed many roads through the strange and fascinating world of science.

In this growth, in this effort, the principles of Willard Dow have been a constant source of guidance and he has shown as much sympathy and understanding for the difficulties of his men as he has for their achievements.

This basic concern with the human element in science and in business, which characterizes Willard Dow today, is due in no small degree to the fact that Midland and the affairs of the Company have always been his first and last interest. He married a Midland girl, Martha Pratt, who is here tonight.

Even during vacations from high school and from the University of Michigan, he worked in the plant side by side with the veteran chemists, learning all phases of the business and at the same time gaining an understanding of the problems of his associates. His father had a strong belief that a properly reared boy should learn the meaning of work, and so it was part of Willard's education to work with other people. It was this experience in various jobs around the

plant that gave him his intimate contact with the men and a realization of their problems.

It was here, too, that he conceived and established his basic philosophy of cooperation which has stood him in such good stead. The fact that he has always been able to deal with his men as a friend and as an associate has played an all-important part in making the Company's treatment of labor problems a model in the history of industrial labor relations in this country.

From the time he took over the management of the plant in 1930 upon the death of his father, he has constantly sought to maintain the same democratic atmosphere that has always characterized the company. He knows a large number of the men personally, and many of the men know and call him by his first name.

His door is always open and anybody in the plant may walk in at any time when he isn't otherwise occupied. As democratic and friendly as he is in his daily contacts, in business he lays all friendships aside and considers the work of his men and their ideas strictly on their own merits, and his actions and his decisions are definite and positive.

He is constantly in touch with many of the men in the plant and in his unofficial title of Director of Research and Development he maintains a close personal direction over the activities of all the divisions of the

Company's research. Practically all of the projects which have been developed by the Dow Chemical Company during the past fourteen years have been worked out under his personal guidance—enterprises such as the extraction of bromine from sea water, iodine from oil well brine, ethyl cellulose from cellulose and ethyl chloride, styrene and polystyrene, chemical servicing of oil wells and magnesium from sea water. Whereas Herbert Dow created the essential idea, Willard Dow has nourished and built that idea to greater and greater proportions.

In passing I might say that his success in other fields has been somewhat less spectacular, and at various times he has dabbled in a variety of activities which might be classified, for want of a better name, as hobbies. At one time he collected copper coins.

Another time he became interested in raising orchids and had his whole staff excited at the prospect of transferring to the northern climate of Michigan the growing of orchids which are commonly associated with and indigenous to more southern climates. He fitted up his greenhouse with a complicated arrangement of apparatus in order to maintain exactly the right temperature. But somehow or other the orchids refused to conform to nature's laws and in this respect he proved to be more a chemist and less a botanist.

In later years Willard Dow, more

than ever, has concerned himself with the role of science and industry in the expanding sphere of American society. He has constantly sought to interpret for himself and his associates a new and greater meaning to nature's laws and the nature of their effect on our daily lives.

Each year has been a stepping stone forward in the development of his character and knowledge of the world about him. As each year has meant the attainment of new and greater things by the Company, so also has it meant a growth and development of his own knowledge. To him the progress of the Company has been a movement and a progression towards a greater scheme of things, a newer understanding in which science and the knowledge of man will play an increasingly greater role.

I can not say it any better than he said it in a speech he made last year. "Nature's way is simple, plain and direct," he said, "but we sometimes follow a devious path before we reach an understanding. Those nations who follow nature's laws most closely are bound to become supreme—supreme in their modesty, supreme in their honesty, and humble before nature's altar."

This is something new in American business. This naturalness, this understanding and this simplicity have injected a new spirit into American life, which I am willing to predict, holds a destiny for the future.

Willard H. Dow - the Chemist

Sidney D. Kirkpatrick

Editor, Chemical & Metallurgical Engineering

WILLARD H. DOW is a doer. While others are planning, debating, and arguing, Dow is translating research ideas into processes that are ready when their production is needed. That is the story behind magnesium—voted the nation's outstanding chemical engineering achievement in 1941—ready a whole year before Pearl Harbor. It is equally true of styrene and butadiene where Dow "know how" helped make possible the whole synthetic rubber program. Without Dow's recovery of bromine from the sea, there could be no flood of 100-octane gasoline for the United Nations.

Willard Dow had to work up to his present job the hard way. Even though he was graduated in chemical engineering from the great University of Michigan and had shown some slight promise of business ability in his campus activities, his first job with the Dow Chemical Company was as a worker in the Midland plant. The first time I saw him, back in 1919, he was pointed out to me as one of the workmen streaming through the gate as the day shift was changing. He

was wearing overalls and a cap, carrying his midnight lunch in a pail like all of the others.

Thus for five years he served his apprenticeship in the works rather than in the front office. He was intent on learning the business from the ground up. By the time he had earned his first title, in 1926, as assistant general manager, he knew more than just the chemistry and engineering of production. He had prepared himself to help in guiding the economics as well as the technology of his company's business.

Willard inherited from his father a keen appreciation of human qualities and he soon learned that achievement was possible only through cooperation and teamwork. Fortunately, he was surrounded by others imbued with the same spirit and ideals. Together they made the Dow Chemical Company what it is today. Their teamwork has carried it to new heights of accomplishment and service to the nation.

Twenty years after Willard's graduation in chemical engineering with the class of 1919, he was to receive

an honorary doctorate of science from the Michigan College of Mining and Technology. In 1941 his alma mater made him an honorary doctor of engineering, and just a few weeks ago he was given the third degree (honorary, of course) from the Illinois Institute of Technology. In conferring these degrees, some very fine and inspiring things were said about Dr. Willard Dow in the various citations. I am going to sum them all up in one paragraph:

They said, in effect, that there are three basic qualities that have contributed to Willard Dow's success as a chemical engineer and as a leader of chemical industry. First is his appreciation of the essential role of research and his ability to guide and stimulate the creative activities of his

associates.

Second is his business judgment in selecting, appraising, and developing worthwhile and profitable ideas for new products and processes. Finally, as an American citizen, there is inborn in Willard Dow a high sense of social and public responsibility that is reflected in everything he does for his company, his community, and his country.

Dow is truly a doer. And it is indeed a sad commentary that while Dow has been *doing* so much for all of us, a few misguided zealots have been trying their best to *undo*, or at least to hamper the great good that has come to America and the world as a result of the initiative and enterprise of the scientists and engineers that since 1930 have been so ably led by our medalist, Willard Henry Dow.

Annual Meeting 1944

The twenty-second Annual Meeting of THE AMERICAN INSTITUTE OF CHEMISTS was held at the Hotel Biltmore, New York, N. Y., on Saturday May 13th, with over three-hundred members attending the afternoon sessions and the dinner and medal award to Dr. Willard H. Dow in the evening.

Papers presented during the afternoon by Dr. Harry S. Rogers, Dr. M. L. Crossley, and Dr. Raymond E. Kirk are printed in this issue of THE CHEMIST.

The annual business meeting of the INSTITUTE was held following the afternoon session, with President Gustav Egloff presiding.

ANNUAL MEETING 1944

Report of the President

As your President, I have a report to make on the results of last year and what we plan for the coming year. We have been fortunate in reaching the highest number of members in the history of the INSTITUTE. We have added five more Chapters to the INSTITUTE in the past year. We have acted catalytically upon a number of scientific and technical organizations from the standpoint of keeping them informed on legislation of all types, unionization of chemists and engineers, all types of material on questions that are inimical to the interests of the professional man.

We are headed for the coming year toward at least doubling the achievements of the past one and we have an instrumentality in the form of our monthly publication, *THE CHEMIST*, which has improved in quality of presentation of papers over a year ago, and has increased advertising pages five-fold.

We believe that this organization of professional chemists is playing a worthy role in these difficult and terrorist times when the whole index of our lives seems to be more or less that of putting us in a strait jacket or under regimentated bombs.

Election of Officers

The results of the 1944 election of officers and councilors were announced. The following officers to serve

for 1944-1946 were reelected: President, Gustav Egloff; Vice-president, Donald Price; Secretary, Howard S. Neiman; Treasurer, Frederick A. Hessel. The following councilors to serve from 1944 to 1947 were reelected: Stuart R. Brinkley and Frank O. Lundstrom. Dr. John H. Yoe, professor, University of Virginia, University, Virginia, was elected councilor to serve from 1944 to 1947.

Report of Employer-Employee Relations Committee Adopted

After discussion, the recommendations of the Committee on Employer-employee relations were adopted, subject to the action of the National Council.

The Report of Committees, Chapters, and Officers, which are printed elsewhere in this issue of *THE CHEMIST*, were accepted.

The following resolution was adopted:

RESOLVED, that THE AMERICAN INSTITUTE OF CHEMISTS, INC., at the annual meeting held on May 13, 1944, does hereby accept, confirm, and affirm, all of the acts of the Board of Directors and of the National Council on behalf of THE AMERICAN INSTITUTE OF CHEMISTS, INC., during the year ending April 30, 1944.

A vote of thanks was given to the councilors, officers, members of committees, chapter officers, and to Mr. T. S. McCarthy, managing editor of

THE CHEMIST, for the work which they have done during the year for the INSTITUTE.

Medal Award

The 1944 medal award of THE INSTITUTE was presented to Dr. Willard H. Dow, president of Dow Chemical Company, at a dinner held following a reception given in his honor. Speakers at the medal award were Colonel Bradley Dewey, Dr. Mark E. Putnam, Sidney D. Kirkpatrick, and Dr. Willard H. Dow, whose papers are included in this issue of THE CHEMIST.

Following the dinner, through the courtesy of the Dow Chemical Company, a short motion picture was shown, entitled, "Magnesium from the Sea."



Dr. Robert J. Moore, F.A.I.C., manager of the Development Laboratories, Bakelite Corporation, Bloomfield, New Jersey, lectured recently before the Junior Chemical Engineers of New York, on the subject of "Synthetic Resin Plastics." He also discussed this topic at a joint meeting, sponsored by the Society of Sigma Xi; the American Society of Mechanical Engineers; the Central Pennsylvania Branch of the American Chemical Society; and the Centre County Engineers' Society, held at Pennsylvania State College.

Fisher Scientific Opens New Plant

The Fisher Scientific Company, manufacturers of laboratory appliances, have announced the opening of a new Central States plant at 2109-2113 Locust Street, St. Louis, Missouri, for the purpose of supplying adequate stocks of laboratory appliances and reagent chemicals to laboratories in this region.

May Appointed Chief of Bureau

Dr. Orville E. May, F.A.I.C., was recently appointed chief of the Bureau of Agricultural and Industrial Chemistry, by Secretary of Agriculture Wickard.

Previous to his recent appointment, Dr. May worked as coordinator of chemical and chemical engineering research programs in the Agricultural Research Administration since 1942. Prior to that he organized and directed the U. S. Regional Soybean Laboratory at Urbana, Illinois.



Copies of "Calibration of Testing Equipment," a new six page booklet, outlining in brief form the purpose and verification of testing equipment, are obtainable without charge from Foster D. Snell, Inc., 305 Washington Street, Brooklyn 1, N. Y. by mentioning THE CHEMIST.

Attributes Of A Profession

H. S. Rogers

President, Polytechnic Institute of Brooklyn

I SUPPOSE it is a matter of conjecture as to what one might say on the subject of "Attributes of a Profession," because that subject might be discussed in so many ways. It seems to me however, that it has taken on new significance as related to many of the problems we have encountered in our professional groups since the beginning of the war.

These recent experiences show a lack of cohesive unity and divergent points of view. We have had some of our distinguished editors pleading for a mobilization of science. We have had some of our distinguished scientists ridiculing the idea. It always seemed strange to me that science could be mobilized anywhere except in libraries. I can visualize the mobilizing of scientists but the purpose of this bill was to mobilize science. We have seen some of the divergent points of view in connection with patent law.

It comes to me strongly that there were various points of view on military training programs. The medical people demonstrated their ability to act with unity of organization in their

programs for the military. The engineers did not succeed in doing that; in fact the liaison committee between the institutions of this country and the army was made up of liberal arts college people in the main.

We have seen a lack of unity and cohesion in our approach to the problem of deferring men necessary to industry. We have been unable to get agreement among professional groups with regard to policy. An effort was made to bring them together through the Engineers' Council for Professional Development so they might speak with one voice before the War Manpower Commission, with only a small measure of success.

Last but not least, and perhaps the one that will be with us the longest is the question of unity as we face the problem of the unionization of technicians. Of the problems before the profession the one of the most importance is this matter of unionization of technicians. It strikes at the central purpose of our professional societies. The principal theme of my talk will be to develop the manner in which it does strike at this central purpose. It

behooves us to examine the characteristics of our professional societies and the professional needs of our people. I think we can do this by making a rapid review of some of the characteristics and attributes of all the technical professions.

Each one of the professional groups consists first of all of a similarly trained group with a common interest and a devotion to some particular field of science or engineering, dedicated to the advancement of scientific and engineering knowledge, to the improvement of training and the facilities for experience, and to the uplifting of professional conduct in the interests of public service. All of our engineering societies present in their constitutions some statement of fundamental purpose of this nature. Rarely have the societies individually given much attention to the economic and social welfare of the professional groups and never, to my knowledge, have they united in giving concerted attention to specific problems with an unanimity of opinion.

The specific and definite field of interest in these professional societies has been fundamentally the development of science and technology, through which human needs and wants may be satisfied. The ends in all these designs are to provide better housing, better clothing, sanitation and communications—in short, to relieve men of labor, to uplift the condition of the human race, and to pro-

vide those things which are basic to a richer and fuller culture.

The means, however, has been one of improving efficiency, of eliminating wastes, or reducing costs and of developing new machines, new materials, new courses of power, new processes, and new products. I emphasize "new" because I think there you find differentiation between groups in each professional field. Those devoting their energies to the elimination of waste, toward improving of efficiency, toward the reduction of costs, are trained in routines, but those who are developing the new processes are the creative leaders of our professional groups.

Now, the second characteristic of the professional groups is that they possess a body of knowledge of engineering, science, or technology which has been developed by individuals, by contributions through the professional press or other publications and by individual authors. This body of knowledge has been continually enriched by recorded experience, by research, by discovery and by new inventions. It is found in the libraries of our institutions, in our public libraries, in our society headquarters.

I think the Institute of Aeronautical Science has perhaps one of the most ambitious plans of any of our societies for developing a library. It is rather hard to define the boundaries of this body of knowledge specifically because it goes from public sources to

ATTRIBUTES OF A PROFESSION

those private sources available to only a few in private companies. It contains the know-how, that phrase we have heard so frequently since the war began, and also the know-why, which is the essence of science.

I don't think any organization of technical people has a program for the development of this body of knowledge so well expanded, so developed in detail, so well executed in performance as the American Chemical Society. They have made a business of developing the basic field of knowledge needed by their members and by all who are in any way related to the field of chemistry, and they have done so in a most magnificent way.

Another common characteristic of professional groups is a formal educational process of distinct aims and standards directed toward the mastery of engineering, science, and technology and an apprenticeship in industrial experience. I call your attention to the fact that this formal educational process is each year becoming more and more necessary in the preparation of technical people. A few years ago, in 1937 I think, the publishers of *Who's Who* made a little study of those who were recorded in the book and found that 100 per cent of the doctors mentioned in that publication had been trained in the medical schools of the country. Some 94 or 95 per cent of the lawyers had been trained in the schools of law and approximately the

same number of the engineers and scientists had been trained in the schools of engineering and science. That would not have been found to be the case twenty-five years ago, but it is today.

At the present time this formal process of education has been rudely interrupted by the Army programs and in that experience there was ample evidence of need for unity.

Just prior to the opening of the war, the Engineers' Council for Professional Development had completed a program for examining and accrediting the institutions of the country. There is a little bit of history there worth noting. This formal educational process is of interest to our founder societies, the ASCE, also the ASME, the AIME, etc., and it had had their attention from time to time but they had not taken specific action toward its nature or content.

The standard of technical education was something also that might have been studied by the Society for the Promotion of Engineering Education, as the American Association of Medical Schools functioned in the accrediting of the medical schools. The SPEE could have done it, but it did not. And so it was proposed by the National Council of State Boards of Engineering Examiners that they undertake the program.

That proposal immediately pushed the engineers into action and they organized the Engineers' Council for

Professional Development and laid out a program of actions for enhancing the engineering professions. The principal one among these has been the accrediting of the engineering schools.

This is one of the illustrations of the manner in which the societies undertake common problems by developing new agencies outside of their major interests. Note, however, that in the titles of these agencies we find such terms as "promotion of engineering education," "council for professional development." These terms are indicative of the trend of professional thinking as it is applied to the solution of our joint personal and professional problems. The approach has always been one of improving and developing the profession, improving and developing the capacity of the individual.

Cataloguing another common characteristic of the professional groups, we find established standards of qualification based on scientific and technical competency demonstrated in practice or indicated by training for which recognition is extended by the professional societies, in terms of various grades of membership, or for which the state boards of engineering examiners license the engineers.

The state engineering societies, however, fostered licensure rather than the founder societies themselves. The societies cooperated to some extent, particularly the civil and mechanical engineers—and the electricals

to a lesser extent. They encouraged the establishment of an outside agency to undertake this particular function for the societies and that you see again demonstrates the pattern of our actions as professional groups when we turn toward the solution of particular common problems. We have set up certain functional agencies for them, to make it their matter of principal concern. We grade all membership in our societies with reasonable accord at the various levels of competency.

Still another common characteristic of the professional societies is found in their codes of ethics governing relations for honest and upright conduct. These have been endorsed by the profession through the respective societies and have been directed by motives of professional welfare and public service. Most of the societies have formulated such codes. ECPD is now working on a common code which it is hoped can be adopted. Under such codes the societies police their own memberships and the Boards of Engineering Examiners police the registered engineers throughout the country.

Now, these are the principal characteristics of the professional groups as such and I am going to point out next that they have certain definite relationships to the individual as a member of the group. The character of that individual's service and his career are related to these society purposes in the following manner.

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The codes of conduct cover the relationship between practitioner and client, between employer and employee, and they cover the obligation of the member of the society to the group. Between the practitioner and the client there is to be, and has been, a confidential and fiduciary relationship under which the client represents the employer to the full interests of the employer and he is dedicated to that particular thing.

Between the members of the group there is the obligation to fair-play and exhibit good sportsmanship in professional competition. These two principles are covered in most codes.

Beyond this standard of conduct, however, there is a recognition of a progressive and varied achievement of professional competency which is implied in the entire operation of the societies. The basic purpose of the societies recognizes that individuals and groups have as their primary aim that they shall contribute to the knowledge of the science and the art for the welfare of society. There is the recognition of the common educational procedure at various levels and a parallel in the set-up of standards of competency. These are among the primary things implied in the activities of all of our professional groups.

How do those affect the young men who graduate from our institutions and take jobs and look forward to advancement in positions of greater responsibility and to the exercise of

greater professional competency in their careers! The whole society stands with them and behind them in that career aspiration to progress and to development. It does so because as the individual makes progress in his personal career he contributes to human welfare and to the benefit of the race as a whole. The reason we put some of these special functions outside the individual society is because it is drawing our groups together on common ground, a thing which we might not otherwise be able to achieve.

These purposes of growth, of development and of service are entirely inconsistent with the current objectives of unionism—with the assumption that there is opposition of interest between employer and employee, and that primarily there is competition for the earnings of a company between these two groups. Such objectives also are entirely opposite to standardization of earning or to the seniority control of the closed shop. Many of our young engineers find it advantageous to move from job to job for the sake of experience. I have known some who have gone high in their profession by going from one job to another—a thing that unionism would have prevented.

The basic essential to the work of our professional societies is a condition which will provide for freedom of natural growth and the expansion of professional competition which could not exist under unionism. I

make this point not because of the welfare of the societies or individuals themselves, since the welfare of the societies is meaningless if the welfare of the public does not result from it.

I would not want to be in the position of offering that we must immediately take action against the threat of unionism. But I do think we must take up action to protect the central purpose of our professional societies. If we do not take action that central purpose will be throttled by what will happen to our younger groups through unionism. We cannot pass this job on to someone else.

We may set up common agencies as we did in the state engineering societies and as we did with ECPD, to

take up accrediting and like matters, but I am certain we cannot, and we must not, allow this present situation to get out of hand. You have had the details of this movement toward unionization presented to you. You know what regulations of NLRB are doing to our technological groups to bring our young men under unionism whether they want to or not.

I have no suggestions as to the way to meet this situation but I have suggested that this unionism strikes particularly at the very heart of every fundamental purpose of our professional societies, and this is a matter to which we must give our earnest attention.



Abstracts of Foreign Patents Available

The office of the Alien Property Custodian is now publishing abstracts of 7000 foreign-owned chemical patents which have been seized by that office.

The abstracts are grouped in sections under the headings, General Chemistry (6 sections); Inorganic Chemistry (6 sections); Organic Chemistry (19 sections); and "Others" (2 sections).

The price is \$1.00 per section or \$25.00 for the complete set of 33 sections. They may be ordered from the office of the Alien Property Custodian, Chicago 3, Illinois.

Simon Mendelsohn, F.A.I.C., has contributed articles on embalming, from ancient times to the present which appear in "Ciba Symposia," for May, 1944. INSTITUTE members who are interested may obtain copies gratis, on request to Ciba Pharmaceutical Products, Inc., Summit, New Jersey, by mentioning THE CHEMIST.



A limited number of souvenir dinner programs, on the Annual Meeting dinner to Dr. Willard H. Dow, are available to INSTITUTE members on request to the INSTITUTE offices.

Defining the Chemist

M. L. Crossley, F.A.I.C.

Director of Research, American Cyanamid Company

A SATISFACTORY definition of the chemist should state explicitly, clearly and authoritatively the type of service the chemist is capable of rendering and the qualifications he must have for such service. By his work and the impress he makes on Life in doing it must he be known. If chemists do not know what it means to be a chemist, who should? Professional solidarity can be achieved only by a definite concept of the obligations the profession imposes on its members.

This must be understood and accepted by all chemists, regardless of their specialized field of service. The teacher using his knowledge of chemistry in instructing; the consultant, guiding and advising others through the perilous seas of industrial chemistry; and the investigator delving into the interior of the atom should have the common purpose of using acquired knowledge of chemistry with maximum usefulness and distinction in the service he renders.

The definition must prescribe the basic requirements to be met in qualifying as a chemist, without imposing restrictions which discriminate be-

tween the chemists who do qualify. It may be safely left to his contemporaries to measure the quality of the individual chemist's service and assign him his rightful place in the profession. There should be but one definition and it should be acceptable to the entire profession.

It is regrettable that two definitions have already been published and both without adequate consideration by all concerned. The definition accepted by the Council of The American Chemical Society in the Spring of 1936 stated that "A chemist is one properly versed in the science that treats of the composition of substances and the transformations which they undergo."

Since this description of the science is the long established definition of chemistry it seems unnecessary to include it in the definition of the chemist. Then, this definition may be condensed to: A chemist is one properly versed in chemistry. The specifications set for being "properly" versed in chemistry were:

(a) The completion of the requirements for a degree in chemistry or chemical engineering in an edu-

tional institution accredited by the American Chemical Society and either two years experience or two years graduate study in chemistry or chemical engineering, or

(b) The completion of the requirements for a degree in chemistry or chemical engineering in a non accredited educational institution and three years of chemical or chemical engineering work or three years of graduate study in chemistry or chemical engineering, or

(c) Recognized accomplishment in one or more branches of chemistry or chemical engineering.

In April of this year a new definition was passed by the Council of the American Chemical Society restating the qualification for being properly versed in chemistry and introducing the idea of internship. It is stated broadly that education and experience are essential and then four different ways are provided for qualifying as a chemist.

One is properly qualified as a chemical intern when he "has completed the requirements for a degree in chemistry or chemical engineering and is engaged in the field of chemistry in gaining experience."

No statement is made as to the time required to complete the internship and it is not clear if this is intended as a period of preparation for full recognition as a chemist or if the intern in a special class of chemist. As a chemist the definition leaves him "in-

terned." Whatever the purpose intended the term "intern" is unfortunate. It lends greater confusion to a situation already badly muddled. Intern is commonly accepted to mean "one who upon completion of the required course of study serves in a hospital in preparation for independent practice."

It is in effect an apprenticeship in medicine and the period of service is prescribed. There is definite recognition of the ending of the period of internship and the right to assume independent practice as a physician. I see no similar provision for the metamorphosis of the chemical intern into a chemist.

It is also provided that one may qualify properly as a chemist by completing the requirements for a degree in chemistry or chemical engineering and being "certified to have completed the minimum requirements for professional acceptance by an educational institution approved by the American Chemical Society" and in addition having two years of experience or two years of graduate study.

The requirement of certification is about as lucid as the instructions for filing Federal income taxes. Does it mean that these approved institutions certify that the requirements for professional acceptance have been met or that they determine what the requirements are that have to be met. What is "professional acceptance"?

Another way to qualify, according

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to this definition, is to have worked for a period of five years in professional chemical or chemical engineering work, in addition to meeting the educational requirements, if in the class of "any other person" than those previously prescribed for in the intern and certified groups. Finally one may qualify by recognized accomplishment in the profession.

The chief difficulty with these definitions, besides the lack of clarity, is that they define the chemist in terms of the prescribed means for securing the desired qualifications for the profession, instead of the results obtained that guarantee a high standard of professional service. The purpose is good but the method doubtful.

It is important to see that educational institutions have modern laboratories and proper physical equipment but it is also imperative to insist that they have able, inspiring teachers and that they provide curricula capable of giving the foundation of cultural education in addition to the scientific and technical instruction essential to the chemical profession. A thorough knowledge of chemistry is but one component of the proficiency of knowledge the chemist must have if he is to serve with usefulness and distinction.

The only proper measure of fitness for service in the profession is the capabilities of the individual and this cannot be always assured by the size or reputation of the educational in-

stitutions through which the product passes on the way to the professional market. Some of the ablest chemists have come and continue to come from certain of the small colleges with poor physical equipment. It is my experience that as high a percentage of these chemists do excellent work at the outset as those from the schools with better facilities. To discriminate in any way against these men is neither just nor wise.

Discrimination within the profession will cause dissension within the ranks that will lessen the effectiveness without. In formulating a definition of the chemist we should strive to keep distinctly separate the desire to have the best possible means of instruction and the purpose of distinguishing the chemist as a professional man capable of rendering a high type of service.

The creed of the chemical profession should be based on a belief in the dignity of service and the willingness to discharge the obligations of citizenship with honor in following the light of truth with the greatest usefulness and reputation.

It is highly important that the chemist be educated to be a good citizen. This is of prime importance. What good is a knowledge of chemical facts without an adequate appreciation of their significance and a wise interpretation of their meaning in life? What satisfaction is there in exploring the physical universe if we leave out man? What is accomplished by the knowl-

edge which leads to the conditions that extend the life span of the individual, if no provision is made to make old age useful and comfortable.

These questions and many more such will not be answered by chemical facts alone. The facts help the chemist to solve problems only to the degree he is capable of understanding and evaluating them. The fact that the student has been exposed to the courses required for a degree in chemistry is not sufficient assurance that he has proper educational fitness for the profession. The regret is that we specify it to be a degree in chemistry or chemical engineering, unless these are professional degrees obtained on the completion of postgraduate work, as they should be.

The packing of science courses into undergraduate work to the extent of almost completely eliminating the humanities results in highly skilled technicians and chemical artisans but not in properly educated chemists. We get doctors of philosophy who are for the most part illiterate.

The chemical profession is to blame for this situation. Unfortunately our school system works to give us what we want rather than what it should know to be good for society. If the people were to insist on a more thorough system of training intelligent citizens, the schools would respond in modifying the curricula upward as readily as they do downward; of course, it is not admitted that the re-

vision will direct the trend downward; it is assumed that it is in the interest of progress to make education useful. The sad part is that too often the result is to make much of the work of education useless.

So far as the chemist is concerned the results of his work often concern human problems and relationships. In dealing with these he is supposed to follow a professional code of ethics, the basis for which he is often totally ignorant. It is taken for granted that such a code is part and parcel of his very being. This is based on an inadequate appreciation of human nature and historical evidence. A high sense of ethical values result from the inheritances of the race in overcoming selfish interests and the precepts must be taught in the home and the school.

Ethics can not be expressed in terms of chemical formulas and are not governed by the laws of physics. The appreciation of a professional code of ethics is dependent on the individual's sense of right and wrong and his determination to live in accordance with high ideals. Honor is the compass which guides humans in the right path. Education should lay down the pattern for the establishment of the ideals by which alone thinking on a high plane can be assured. These are spiritual and moral values and are not to be found in chemical courses. They are however, essential to the proper qualifications of the chemist and must be provided in his education.

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The basis in chemistry and related sciences can be secured in four years of graduate work only at the expense of the humanities. It would be better to give less chemistry and more of the humanities. Knowledge is not to be confounded with wisdom. This is but a brew compounded of all the experience of the race.

The chemist is not simply a repository of chemical and technological facts. His capacity for service is not to be gauged by the type of laboratories he was privileged to parade through or by the flow of facts from his mental spigot, but by his ability to think wisely with what he has and the power to use his expert knowledge in furthering human advancement. It is not so much what he knows and has as what he is that counts.

What he is can be measured only by the estimate of his contemporaries in his profession. He is being examined constantly and the verdict is recorded in an indelible way on the pages of *Life*. It is the function of the professional organizations to provide the means for evaluating professional service. This must, of course, take into consideration both education and experience.

The education should qualify the chemist for a junior grade service and in a definite minimum of time, he should be considered eligible for recognition as a full rank member of the profession or chemist. This is but the basic situation. Special work in chem-

istry requires further basic knowledge and this can be had only by further education and experience. This should have nothing to do with the basic definition of a chemist.

The minimum education considered to best qualify the chemist for his profession has been previously formulated in a report to **THE AMERICAN INSTITUTE OF CHEMISTS**. I can offer nothing better now. The problem is to agree on the educational requirements and then adopt a plan for securing the desired results. It is not enough to have these ideas. Words that have mesmerizing action do no good.

In the light of present knowledge it would seem that the qualifications for the chemist could best be had by an undergraduate course with a proper balance of science and the humanities and at least one year of graduate study in chemistry and allied sciences. This should qualify one for consideration as a junior chemist. In addition a minimum of two years of experience or two years of graduate study in chemistry should be required to qualify as a chemist.

Meeting these minimum requirements should not be sufficient to automatically qualify chemists. The final test should be their demonstrated ability, giving promise of their future in the profession. This can be measured only by the estimate of other chemists and it should be the obligation of the organizations like **THE AMERICAN**

INSTITUTE OF CHEMISTS to secure such evidence, and on finding it satisfactory admit the chemist to full privileges of the profession, thus authoritatively recognizing him and endorsing his professional status as a chemist.

Education is not confined to academic halls. Some of the ablest men in different walks of life have secured all of their education in the hard way; by self instruction and discipline. It would be unjust to set any barriers against the professional recognition of those who have demonstrated by their accomplishments that they possess the capabilities of good chemists, even if they lack degrees from educational institutions. Again the verdict should rest with their peers.

The chemist is a person qualified to ascertain the facts of chemistry and to interpret them with usefulness and distinction.

In conclusion, I recommend that the National Council consider this and other reports dealing with the qualifications of the chemist and adopt a definite program for achieving the desired results. As a basis for discussion, I propose that the above definition be accepted and the following conditions be prescribed for one to qualify as a chemist:

1. Educational requirement: Certification by a college of high standing that the person has completed satisfactorily the requirements for a bachelor's degree, the courses leading to

which shall have included not less than forty per cent of studies in the humanities and sixty per cent of chemistry and related sciences. In addition, one year of postgraduate study, not less than seventy-five per cent of which is chemistry or chemical engineering. This educational requirement may be waived where accomplishment in the profession proves a person to have its equivalent. The acceptance of evidence that one has met the educational requirements for the profession admits him to the rank of junior chemist.

2. Experience: A minimum of two years of continued experience in chemistry or chemical engineering may qualify a junior chemist for consideration of his acceptance as a chemist. This request may also be met by two years of graduate study in chemistry or chemical engineering. The experience must inoculate the young chemist with the virus of practicality without immunizing him against original thinking.

3. The junior chemist, having met the minimum experience requirement must provide affidavits from five responsible chemists, in a position to know of his work, that in their judgment he qualifies for the profession.

4. Having demonstrated that he has met the above requirements, the chemist shall receive a certificate of his admission to the profession as a chemist.

The Institute has talked much; now it should act. To make its work ef-

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fective, it should have a full-time executive to carry out the decisions made by the Council. The only source of power to act as a body comes from the confidence of the profession that

its chosen representatives have the will to fight for the principles it believes vital to its existence, and that there exists the machinery of organization to put the decisions into effect.

Employer—Employee Relations

Raymond E. Kirk, F.A.I.C.

Head, Department of Chemistry, Polytechnic Institute of Brooklyn

I HAVE been engaged for the past year—as a part-time interest—in serving as chairman of the committee of the Council to investigate the general situation regarding employer-employee relationships in professional chemistry.

I am only attempting to report for the committee and to describe in a general way the considerations that led to the report on "Employer-employee Relationships" which is reprinted at the end of this article.

Your committee is submitting eight general recommendations on policy. It is our desire to discuss that report in a rather general fashion. Any statements made in this presentation are to be considered the statements of the chairman, since they have not been approved by the Council or the committee. The committee has endeavored to find out by correspondence and by discussion what the general situation is among professional

chemists with respect to employer-employee relationships and with respect to the so-called "attempts at unionization."

The facts regarding the activities of traditional trade unions among professional chemists seem to be about as follows: The activities of these groups have been mainly among the sub-professional workers in chemistry—laboratory technicians and chemical operators. These attempts have coincided, for the most part with vigorous efforts under way to organize workers in the chemical industries along union lines. This means, therefore, that in certain localities the union endeavors are by groups associated with the A. F. of L., or the C. I. O., or the U. M. W.

In addition, instances have been brought to the attention of the committee regarding the existence of a large variety of independent organizations with or without company spon-

sorship. In many instances attempts at unionization have involved attempts to include professional chemists along with chemical workers. Attempts have even been made to include the professional chemists with maintenance men of the laboratories.

The committee finds it significant that in certain instances these organizations have had an appeal to professional chemists. It seems to me that these attractions are felt in part because the rising cost of living is being felt by professional chemists at many levels. Also, in part by the general impetus toward collective bargaining, that has been characteristic of employer-employee relationship at all levels during the last fifteen years.

How about the attitude of the professional chemist? The attitude of professional chemists in general and fellows of THE AMERICAN INSTITUTE OF CHEMISTS in particular, as disclosed by discussion and correspondence, seems to include some of all of the following points:

It should be said in passing, though, that the initial reaction seems always to be antagonistic toward unionization. I have said jokingly to my colleagues that the professional chemist seems to think first with his emotions and second with his mind.

However, professional chemists in general have keen sympathy with the known cases of chemists where, through errors of management, difficulties have arisen regarding wages,

tenure, and other conditions of employment. It would be foolish on the part of the committee to close our eyes to these situations, because they do exist. And professional chemists are genuinely sympathetic toward their colleagues who are employed under such conditions. It seems to be generally admitted that management has in many cases not been nearly as conciliatory in its attitude toward the professional workers as toward workers represented by union delegates.

Next, it seems in general that professional chemists have a very keen desire to remain professional men and to maintain a high professional attitude toward their work, toward their employers and toward the general public. Many professional chemists have expressed themselves as highly desirous that the profession adjust many situations where promotion and salary increases are given on straight seniority basis or there were suggestions of attempts to limit output.

These same men are equally desirous of seeing brought into being rational promotion procedures based on merit and protected from capricious decisions made by persons unfamiliar with the merits of the professional men concerned. Many professional chemists also express the wish to see complete recognition by management of the principle that proper obsolescence of professional workers, as well as obsolescence of plant and equipment should be charged against costs of

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production.

This entire question has been completely handled by Dr. Crossley in the January 1934 issue of *THE CHEMIST*. It is there nicely presented and carefully argued. It is hoped that all members not familiar with that publication will review the article.

It is well here to ask the question made famous in the First World War, "Where do we go from here?" Here the speaker feels that the procedures recommended by the committee should be used as a place of departure rather than as a complete program. One attitude that might be taken and utilized is shown by the general plan that has been attempted by the American Society of Civil Engineers.

This plan, as the speaker understands it, involves the setting up under the general auspices of the Parent Society of collective bargaining groups of civil engineers and other related professional workers. The directors of the parent society are offering a rather elaborate plan of support for this procedure. It has been pointed out that this plan may only serve to set up collective bargaining units that may be taken over by skilled organizers from the delegation trade union organizations.

The second approach that might be taken is that employed in what one chooses to call the "attitude" of the American Chemical Society. This, as I understand it, is that the American Chemical Society will provide advice

and counsel for any group of professional chemists that wishes to contemplate an organization for collective bargaining. However, the American Chemical Society will not participate in this bargaining.

Finally the question is now pertinent as to whether there is a definite course that is desirable for *THE AMERICAN INSTITUTE OF CHEMISTS* to take. This might well be called the middle course and is one which in the opinion of the speaker is in accord with the principles and traditions of *THE AMERICAN INSTITUTE OF CHEMISTS*. It seems highly desirable that the membership of the *INSTITUTE* present at this meeting adopt or reject such a procedure leaving the details to future elaboration by such a group as the members wish to have given this task.

It has been said that the statement of procedure submitted by the committee is too weak. It has also been argued that the same statement of procedure is far too vigorous and commits the *INSTITUTE* to something that it cannot do. These are points that should be discussed fully and freely in open meeting. This is not "must" legislation. It is not asked that the members adopt these procedures without amendments or reservations. It is, however, urged that prompt and judicious action be taken at this meeting.

The speaker wishes to make two additional comments. The first is

that in his opinion this problem will grow in importance to the profession of chemistry. The second is that any one who believes that a change in the National Administration of political affairs in the United States will solve

this problem is "spoofing" himself. The problem is before the profession of chemistry in America. THE INSTITUTE OF CHEMISTS can exercise leadership in its solution if it chooses to do so.

Report of the Committee on Employer-Employee Relationships

IT is respectfully recommended to the Council of THE AMERICAN INSTITUTE OF CHEMISTS that the following policy be adopted by the Institute regarding employee-employer relationships of chemists:

1. A strong professional group or groups should be available to represent employed professional chemists (Professional Chemist means one who is eligible to either grade of membership in the A. I. C.)
2. A vigorous campaign should be instituted to educate management in the desirability of professional societies for professional employees as distinct from labor unions.
3. The A. I. C. should confer with the other existing societies in the field of Chemistry regarding a common policy for the guidance of employed professional chemists.
4. It seems desirable to establish in conference with other professional societies both a common policy and a common phrasing of that policy.
5. Professional societies should study very carefully possible ways in which they can aid their employee members in problems concerning their relationship to management.
6. The A. I. C. should promote a system of minimum salary schedules for various classes of chemists, dependent on training and ability, and should then suggest to employers through publicity, or otherwise, the desirability of such minimum schedules for their professional chemists.
7. The A. I. C. should urge upon management the importance and desirability of providing contributory annuities for professional chemists on a definite contractual basis. The A. I. C. should obtain, prepare, and publish information regarding desirable forms for such annuities.
8. Employed professional chemists should be encouraged to affiliate with professional groups in the interest of professional solidarity.

Combat Chemist

Lawrence H. Singer

(Reprinted from the "Philadelphia Inquirer")

WHEN the authoritative story of this war is recorded, a modicum of glory should be assigned to that cluster of silent, unpublicized men whose brilliant laboratory achievements are being translated into daily military triumphs.

One of the foremost scientists charting the path to Allied success is Dr. Gustav Egloff, president of THE AMERICAN INSTITUTE OF CHEMISTS, and the world's outstanding petroleum technologist. His research work has been a vital factor in the quantity production of our new aviation super-fuels, the life blood of our hard-hitting air fleets. If our pilots knew the facts, they would intone a lusty cry of "Thanks, doc!" each time they climb into their planes.

A year ago, our supply chiefs pointed with pride to the mass output of 100-octane gasoline, at that time the practical ultimate in airplane power. But in recent months, under the dynamic leadership of Dr. Egloff, the United States has advanced into volume manufacture of a new super-fuel, which increases power *half again* over that of engines burning 100-octane gasoline. When this miracle

liquid finally is available for all our combat planes, it will give us an enormous advantage in climbing power, speed and lifting ability that will, in Dr. Egloff's own words, put enemy machines at our mercy as if they were "roosting pigeons."

THE potent new super-gas, named Triptane, was developed by the Universal Oil Products Company of Chicago, which Dr. Egloff has served for many years as research director. Actually, this revolutionary fuel has been known to chemists for almost eight years, but until recently it merely was a rare laboratory curiosity. Before 1941, tiny quantities had been produced at a price estimated around \$3,000 a gallon. Shortly after we entered the war, a few hundred gallons were turned out at a cost of about \$40 a gallon.

Now, under Dr. Egloff's direction, two of his associates have succeeded in bringing the figure down below a dollar a gallon. Eventually it probably will cost no more than commercial grades of high-octane gasoline. The importance of this contribution to gasoline development lies in the simple

technique utilized for manufacturing the potent new fuel—with equipment, temperatures and processes that already are available to most oil refiners. Triptane's basic raw materials are captured in the form of condensable gases, derived as by-products in routine petroleum distillation.

THE co-inventors who perfected this outstanding achievement in wartime research are both Russians—Professor Vladimir N. Ipatieff and Dr. Vladimir Haensel. The former, now 75, held the rank of general in the First World War, having been director of Russia's chemical industries. His associate is a keen young chemist, not yet thirty, who received his scientific training at Northwestern University and the Massachusetts Institute of Technology.

Triptane is the most powerful hydrocarbon known for use in internal combustion engines. Its anti-knock properties are so enormous that no commercial motor has yet been designed with the ability to utilize the complete power value of the pure fuel. It is necessary at this time to blend Triptane with regular aviation fuels. The addition of this magic formulation to 100-octane gasoline enormously improves performance of present-day engines.

When motors able to use Triptane's ultimate power are available, our planes will enjoy a *fifty percent edge* over Goering's most formidable opposition. In the meantime, the blend is

giving our air fleets up to 25 miles an hour of additional speed. Dr. Egloff is not particularly concerned over Germany's chances of duplicating his fuel. He feels the basic materials for quantity production are lacking in Nazidom, even if the process should be learned.

GUSTAV EGLOFF, the driving force behind this epoch-making advance, is little known to the general public, although his fame in petroleum circles is world-wide. Born in New York of Swiss parentage 57 years ago, he attended Cornell University and then pursued graduate studies at Columbia. After a period of service with the U. S. Bureau of Mines, he joined the Universal Oil organization in 1917.

More than 300 separate patents relating to oil technology are credited to Dr. Egloff. He has published about 500 papers and articles on his work, and is the author of several imposing volumes relating to his specialty. "Chemical Industries" Magazine estimated last year that more than 600 commercial hydrocarbon processing units, now scattered over every corner of the earth, are based on research done by Dr. Egloff and his staff.

A multitude of kudos have been paid him for his professional accomplishments by academic and scientific bodies around the world. Dr. Egloff has been honored with the Columbia University Medal for Excellence. In 1940 he won the highly-prized Gold

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Medal of THE AMERICAN INSTITUTE OF CHEMISTS. In the same year he was named a "Modern Pioneer" by the National Association of Manufacturers.

TRIPTANE undoubtedly will have considerable influence over every form of post-war transportation. Dr. Egloff contends that eventually we will have cheaper motors, with less noise and vibration in the car than today. Fuel prices will be higher, but mileage will be twice current standards. This highly-qualified expert has little patience with those prophets of doom who constantly warn that our oil reserves will be gone in 15 to 20

years. He maintains we have merely tapped the U. S. reserves.

As president of THE AMERICAN INSTITUTE OF CHEMISTS, Dr. Egloff has been the moving spirit in organizing his profession for national service. "In this global war, the chemist is on the combat line just as the soldiers and sailors at the front," he said recently. "There is scarcely a phase of war activity in which the chemist does not play an indispensable role. He has always been a modest though important worker. He still is modest, but his deeds in the war effort speak for themselves—with tones than cannot be ignored."

Some of the Press Editorials on Dow Award

Audacious Dr. Dow

Some of the shrewdest remarks of experienced men are uttered where listeners are relatively few, so that the world outside remains no wiser. That seems to have been true of a speech made the other day by Dr. Willard H. Dow when he accepted the gold medal of THE AMERICAN INSTITUTE OF CHEMISTS. Asking whether he and his colleagues, as scientists, had failed in their effort to advance humanity, he said: "There is only one security and that grows out of the individual thinking for himself, and that honestly and sincerely. But we are discarding all our experience, traditions of past prosperity and our en-

tire knowledge of success with individualism. We are, in short, discarding Americanism and all it stands for. That means we are discarding our moral basis." In an era in which the moral basis of society is being redesigned along global lines, it is audacious for any speaker to suggest that individuals ponder the experience of the United States and the source of our success. Dr. Dow faced the risk of being put down as an old-fashioned idealist by progressive thinkers who are out to save their fellow men in the mass—and to perdition with any individual who won't go along.

—*The Sun*, New York, N. Y.

War Time Restraints After the War

That Dr. Willard Dow, head of the chemical company bearing his name, should have no confidence in the ability of the government to plan and control the lives of the people, is understandable. Before the outbreak of the war, his company perfected a method for making out of ordinary ocean water, a metal which he believed would play an important part in a war if we were drawn into it. The metal was magnesium, which is as strong as iron and but little more than half as heavy as aluminum. Dr. Dow went to Washington, pointed out the qualities of the metal, and asked the army and navy to tell him how much the government would have use for.

The government men weren't impressed. He believed that they would wake up, and went ahead and built a large plant on the Gulf of Mexico. As a result of his refusal to let the government's decision control his action, there were facilities for producing this highly useful war material by the time that the war agencies were seeking large quantities of it.

If science and industry had been subject in 1940 to the tight controls which have been imposed in war time, our war planes would not be as good as they are. And yet, as Dr. Dow pointed out in New York Saturday night when he accepted the gold medal of THE AMERICAN INSTITUTE OF CHEMISTS, "Every few years a group

of men recommend that all advancement should be in the control of a single group of scientists. An idea, no matter how weird, may grow into a constructive thought and enlarge to a new approach. Can you conceive what would happen if any group, no matter how able, were made the masters of research and discovery, if their composite experience were to make all the decisions? We discard the very thought as nonsense."

Advancement comes from the free employment of individual initiative. The present regime in Washington does not believe in that. It has urged that the period of development of new great industries is over, and that the important progress is all in the past. It has insisted that Washington should make the decisions, exercise the controls over our lives, and as a kindly despot distribute the wealth and income.

A large measure of control was established by the "adult economy" theorists in the reflationary years before the war began. During the war, the controls have been very greatly extended, always with the promise that they would be removed as soon as the war is over. But now we hear a different story. The rationing of shoes, a Washington official has just found must go on for a little while after the war is over, because there will not at once be enough to go around. The sharing of gasoline must be continued

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until Mr. Ickes determines how long the gasoline supply will last. Fats and cheese must be rationed until Europe gets back its cows. Price control can't be terminated or we will have inflation. Get rid of the controls little by little says the bureaucrat.

As Dr. Dow points out, there is no such thing as easing out of government controls. Either you get rid of them all or you are stuck with them, for one of them leads to another. If you control prices, you either have too much and have the problem of getting rid of the surplus or you have too little and are driven to rationing. Rationing, as we have seen, leads to a demand for subsidies, production control, and a determination of what is to be made and who is to make it. In Germany, you have the slave way, with the government making all such decisions. In the United States before Roosevelt we had the free way, with the individual making the decisions. Under the New Deal, we were moving more and more toward Hitler's way before the war, and it worked badly. The only prosperous times we have ever known in the United States have been under freedom. An economy half slave and half free won't work. Either we kick out the whole caboodle promptly when the war ends or we shall lose our freedom little by little until all is gone.

—*Chicago Tribune*, Chicago, Ill.

Two Votes for Freedom

Russia's magnificent contribution to the coming defeat of Germany, the evidence of materialistic miracles performed under a semi-Marxist regime and our growing awareness of the necessity for post-war co-operation with the U. S. S. R. have combined to confuse many Americans in their thinking about that great nation.

This confusion has had many queer manifestations, but most noteworthy is the tendency to assume that the Russian domestic experiment has been so successful that it must become our guiding light in the solution of American economic, social and political problems.

This feeling has become so strong that any who arise to condemn the Soviet system, to resist the trend toward Marxism in this country, are widely accused of Fascist sympathies and of trying to stir up ill-will between the two strongest Allied powers.

Such, undoubtedly, will be the fate of Dr. Willard H. Dow, president of the Dow Chemical Co., whose address Saturday night in acceptance of the gold medal of THE AMERICAN INSTITUTE OF CHEMISTS, granted him for his contribution to this country's progress in peace and war, was a warning against aping of foreign economic systems and a plea for renewed faith in the American ideal of individual freedom.

"We are being warned against the

Little-Known Facts About *Nimco* bran...



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Our soldiers' shoes can take it because they are made from top grade leathers that have been stuffed and waterproofed with wool grease to withstand mud, water and snow. Today Lanolin and all grades of Wool Grease are being used in the production of hundreds of war products.

Hundreds of thousands of yards of surgical adhesive tape are being used by our armed forces. Into the manufacture of this vast yardage of adhesive tape; into ointments and other medicinal creams, go great quantities of Lanolin U. S. P.

Today, millions of men believe that Lanolin and wool grease are better protective emollients, lubricants and preservatives than any other products. Lanolin and wool grease are better products to use in the manufacture of cosmetics, soaps, shampoos, shaving creams, protective emollients, lubricants and preservatives. Lanolin and wool grease are better products to use in the manufacture of cosmetics, soaps, shampoos, shampoos, shaving creams, protective emollients, lubricants and preservatives.

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dangers of freedom," he said. "We are being openly counseled to follow the cultures and even the diets of nations that never knew freedom. In the twenties, foreign missions were inspecting us to see how and why we managed so well. Now, in the forties, we are being taught that whatever we did in the past as a people was crude and quite wrong and that our future lies in being something other than American. * * * Countless millions are longing for what they call security and seem willing to pay any price for any package labeled 'security.' The sands of man's belief in himself as a being created in the image of God are running out."

What Dr. Dow has to say will, of course, be heavily discounted by many Americans because he is that pariah of modern times, a successful businessman. But perhaps his detractors will be impressed by the voice of one who wanted so much to believe that Marxism was the way out that she gave up on the Soviet regime only after years of living under it and working for it had convinced her it was not the answer.

She is Markoosta Fischer, Russian-born wife of the noted foreign correspondent, Louis Fischer, who left her homeland in 1915 determined never to return until the Czar had been overthrown, who returned in 1922 as the secretary of a Soviet railroad expert and worked sympathetically with the Soviet regime in various capacities

from then until 1939, when the political purge finally disillusioned her and she came back to live with her husband in this country.

Says she, in her book, "My Lives in Russia":

"Nothing but the truth about Russia can restore honest, clear thinking about that country and give us an understanding of Russia's role in the future. I understand the feelings of those who regard the Soviet Union as the only solution of the evils in the world. But they, especially the young people, in whose hands the future lies, ought to know that besides the good aspects of Russian life—human equality, economic progress without exploitation, education of the masses, social security, lack of racial discrimination—there are also suppression of freedom, regimentation of spirit and political terror.

"In planning and working for a new world, they must be aware of the danger of trying to achieve quick material gains only to neglect what is at least as important—spiritual and moral values."

—CLEVELAND PLAIN DEALER.

Great Debate

At war's end, how soon can U. S. industry be freed of rigid Government controls—and how much of it can be freed? On this important subject, the U. S. last week heard two important debaters: OPA Boss Chester Bowles and Dr. Willard H.

PRESS EDITORIALS

Dow, white-haired, scholarly president of Michigan's Dow Chemical Co.

Once a successful advertising man, the just-jawed, smooth-talking head of OPA shocked many a U. S. businessman by asserting in a speech, at Yale University: "The role of government must be greatly reduced after the war... But... there is far too easy an assumption on the part of many that we have only to strip off controls and we'll go right back to all-out peacetime operations without a hitch. There are two things wrong with that view. It won't be easy—and we can't go back."

To avert a postwar depression, ex-Businessman Bowles proposed that wartime controls be replaced by a "broad and farreaching" program to: 1) put a floor under wages and prices—in effect, a combined OPA and WLB in reverse; 2) remove any ceiling on public works. For the long pull he joined Alvin Hansen, Beardley Ruml *et al* in proposing that Government shall keep the U. S. economy in balance by lowering taxes and increasing expenditures in slumps, upping taxes and reducing expenditures in booms. He declared flatly that government must always play the "central role" in the economy.

From Dr. Dow, whose company, almost singlehanded, saved the U. S. from a critical magnesium shortage (*TIME*, March 20), came a resounding snort. In Manhattan's Biltmore

Hotel, after receiving the Gold Medal of THE AMERICAN INSTITUTE OF CHEMISTS, he cried: "We are being warned against the dangers of freedom.... All of which is rot. We are being told that... we must ease out of controls and that chaos would follow their sudden ending. By the very nature of our present controls we cannot ease out of them. We can only ease into permanent control... Whatever may be the seeming dangers of throwing off our controls, they are as nothing in contrast to the dangers of being merely a tended herd."

—*Time Magazine*, New York.

Science of Politics

Dr. Willard H. Dow, president of the Dow Chemical Co., is one of the all-too-rare scientists who are also industrial managers. Dr. W. M. Burton, the chemist who once headed Standard Oil of Indiana, made the motor age possible by his discovery and perfection of a methodology of cracking crude oil to get gasoline for motor fuel. Dr. Dow made the production of magnesium a volume industry, and what was once a rare metal is now one of the abundant and cheap structural materials of airplanes.

What does the scientific type of industrialist think of economic planning? Scientists and engineers are a rather inarticulate group. When they do venture into observations of politics

and economics we often get something worth thinking over.

In a recent speech at a banquet where he received the medal of THE AMERICAN INSTITUTE OF CHEMISTS, Dr. Dow made it plain that his idea of what to do with planned and controlled economy after the war is to snap out of it: "We are being told," he declared, "that controls are not in the American spirit, but that we must ease out of them and that chaos would follow their sudden ending. Some of those who advise us to go slowly have records of achievement in business and finance and therefore would seem to speak out of experience.

"But by the very nature of our present controls we cannot ease out of them. We can only ease into permanent control, and the kind of society in which the individual never has a chance to express himself. For one control breeds another.

"We have already seen how quickly price control leads to subsidy. And also we are witnessing how price control brings artificial gluts and shortages. Every housewife is becoming a ration-coupon speculator and in a measurable time we shall have to eat on a fixed quantity schedule. The next step must be forced labor, for in a controlled society it is out of the question for the individual to determine either the kind or the amount of labor he will contribute. Then we shall have exactly the same kind of

New Roster

A new roster of the membership of THE AMERICAN INSTITUTE OF CHEMISTS will be published this summer. Members of THE INSTITUTE will be sent blanks to be filled out with name, business address, and title of position held. Each member is requested to fill out the form carefully and return it as promptly as possible to the Secretary.

freedom from want and from fear that the lifer enjoys in his cell.

"For, although control is not a harsh word, economic control by its very nature must be harsh, because it really means the substituting of bureaucratic discretion, and in the end the individual must be deprived of his responsibility and his dignity. We shall have to decide whether we want to be Americans and have government of our own choosing or be something else. There is no half-way point in human dignity and responsibility. It either is or is not."

Whether or not Dr. Dow's conclusions are correct, there is no denying that he reaches them by the same sort of intellectual processes that a chemist uses in a laboratory—elimination and selection.

—*Chicago Daily News*, Chicago, Ill.

Cryptostegia Components Confound Chemists

Russ Symontowne

Editorial Staff, New York Daily News, New York, N. Y.

THE tropical rubber vine, *Cryptostegia grandiflora*, was noted in the Baruch Committee report in the Fall of 1942 as a potentially important source of quick, wartime rubber. So baffling, however, has been the problem of collecting the rubber components from this plant that Rubber Director Bradley Dewey's Progress Report No. 4, issued last Fall, just a year later, makes no mention of *Cryptostegia*.

The only large scale planting of *Cryptostegia* (although several others were contemplated) has been in the Republic of Haiti. There, SHADA¹ a quasi-public corporation, financed by the United States Government, undertook the establishment of a 100,000-acre plantation. During 1943 at a cost of more than \$5,000,000, SHADA succeeded in establishing 7,500 acres of growing plants.

Cryptostegia posed two distinct problems, one the growth of the plant under plantation conditions and the other, the collection or gathering of the rubber.

Although of rapid growth (reach-

ing sexual maturity in about nine months) and hardy, *Cryptostegia* is a delicate seedling. It is best reared in irrigated nursery beds, the young seedlings being set out in the field. The objection to this method is its expense which is considerable even with labor at 30 or 40 cents a day as in Haiti.

Thomas A. Fennell, president and general manager of SHADA, at first planted nursery stock but during the late Spring and Summer of 1943 he risked the direct seeding of 15,000 acres. A satisfactory stand of plants obtained only in scattered areas totaling a few thousand acres and SHADA, having lost its planting season, was compelled, when the Fall rains came, to re-plant with nursery stock.

On a test plot at Brownsville, Texas, *The New York Daily News* met with similar disaster when in the Fall of 1942 it experimented with field seed planting. Close moisture control and extensive soil culture impossible in the field seems essential in giving *Cryptostegia* a fair start in life.

In spite of the first year's record, SHADA appears to have conquered

¹Societe Haitiano-Americaine de Developpement Agricole.

the problem of *Cryptostegia* cultivation and it can be said safely that mass production of the plant is feasible.

Turning to the second problem—that of the collection of the rubber—the rapidly accumulated experience of nearly two years paints a discouraging picture.

At first glance, the recovery of rubber from *Cryptostegia* would seem feasible by some crushing process, comparable to the extraction of sugar from cane. But many attacks on the problem from this approach have failed. There is only 0.75 per cent to 1.00 per cent of high polymer rubber in the harvested plant material.

(Compare 6 per cent to 18 per cent depending on age of shrub in guayule.) An enormous amount of plant material, it is therefore seen, would have to be treated to yield a small amount of rubber which, inevitably, would be contaminated with plant resins and cellulose debris.

The low percentage of rubber and its peculiar behavior when brought into contact, as by crushing, with other plant liquids are factors mitigating against recovery by the solvent method. Components of the plant's sap apparently precipitate the rubber from the latex so that it is deposited in a finely divided state on the plant fibre. (This precipitation is so com-



Cryptostegia Vine

CRYPTOSTEGIA'S COMPONENTS CONFOUND CHEMISTS

plete that examination of the total plant liquids extracted under high pressure failed to reveal any rubber.) The union between the precipitated rubber and the fibre is a tight one, so that rubber solvents have been ineffective. Of course, dissolving rubber degrades it to a measurable degree. Moreover, as a practical matter, *Cryptostegia* leaves would have to be crushed with stems and, since the leaves contain some low polymer there would be a further lowering of the stem rubber quality by this admixture.

Solvent and centrifugal separation of the rubber from plant material which has first been retted have been attempted. There have also been experiments in the digestion of the plant carbohydrates as well as protein disintegration by specific bacteria. Invariably, the microscopic rubber worms were inextricably tangled with relatively large masses of bagasse.

However, since latex containing about 15 per cent of rubber hydrocarbon exudes freely (12 to 21 drops) whenever the water shoots (vegetative growth) of the plant are cut, the problem resolves into a search for a swift, cheap and efficient tapping method.

In the case of *Hevea brasiliensis*, the tapper has to deal with a trunk of large girth from which several ounces of latex running as high as 35 per cent rubber may be collected with each tapping. But in the case of *Cryptostegia*, no large trunk is available

but stems of the order of 5 mm. in diameter from which only a few drops of latex exudes at a tapping.

Since from 7,000 to 10,000 plants to the acre seems an optimum population range, and, since the plants average two to three tappable shoots, a tapping program must contemplate the manipulation of from 21,000 to 30,000 stems per acre. Daily tapping or tapping on alternate days the year around appears feasible and necessary to obtain highest production. Thus, tapping a plantation of 10,000 acres, estimated to yield in excess of 225 pounds of rubber per acre per year, offers the problem of handling from one billion to several billion tiny stems—a truly tremendous task.

It was early recognized that some mechanical tapping aid was required. Unlike *Hevea*, latex exudation from the cut *Cryptostegia* stem concludes in about twelve minutes. This prompted F. K. Daniel and the writer in 1942 to develop a hand tool which tapped the stem and collected the rubber in a tiny paper cup. This device was a lamentable failure.

Eduardo Chavez and Carlos Garcia, in the State of Matamorras, Mexico, invented an extremely ingenious "harvesting machine," which operates with speed and precision but which seems to offer no immediate promise because it requires an elaborate field trackage system.

The Department of Agriculture experimented with a sled-like device

at Coconut Grove, Fla. and it is reported that the United States Rubber Co. has done some work on a "mowing machine" designed to clip off a certain amount of plant material from which adhering dried latex may later be separated.

George van den Bergh, of SHADA, designed a rather complicated tapping stake which carried a cutting board and a clamp for attachment to a bundle of cut stems. In the hands of primitive labor the failure of this device was complete, it is reported from Haiti.

Daniel and the writer and Russell Haden, of the Office of Rubber Director, experimented for many months with numerous devices and had the assistance of closure experts in the bottle, can and packaging industries. It is understood that at the Rubber Development Corporation's invitation Haden will soon demonstrate a bottle-and-clamp too, developed at *The N.Y. Daily News* Brownsville test plot. It can be predicted on the basis of tests in Texas that while an improvement over the stake tapper, this device will not adequately meet the problem.

About January 1st, the Rubber Development Corporation abandoned its 100,000-acre program in Haiti, setting SHADA's acreage at 42,500. At the same time production estimates were lowered. As late as last October SHADA expected to produce 400 tons of rubber in 1943; 3,000 tons in 1944 and 10,000 tons annual-

ly thereafter. No rubber was shipped in 1943 and the current estimate is for 13 tons in the first quarter of 1944.

Until some method, either chemical or mechanical is devised to obtain the rubber constituents from *Cryptostegia*, it cannot be an important source of natural rubber.

Since this article was written, the writer has visited the laboratories of the United Fruit Company near San Pedro de Sul, Honduras. Using material cultivated on a small experimental plot, chemists working under the direction of Dr. Vining C. Dunlap, in charge of research in Honduras, have developed a chemical extraction process using a hot solution of sodium bisulphite.

Stem tips clipped from the plant are first cut into lengths of about two inches and then dumped into wooden vats and agitated with the sodium bisulphite solution at a temperature of 212 degrees F. for about an hour.

At the end of this period, floating rubber globules are collected from the surface of the vats. Since the leaves are not removed it is probable that rubber extracted from the stems is contaminated with low polymer ("weak") rubber from the leaves and there is probably some degradation of the rubber in the process. At present the process is on a semi-pilot scale and it is too early to predict acreage yields of rubber on an industrial scale.

Electronics Conference

The Illinois Institute of Technology, Northwestern University, the Chicago Section of the Institute of Radio Engineers, and the Chicago Section of the American Institute of Electrical Engineers are sponsoring jointly a National Electronics Conference to be held in Chicago, on October 5th to 7th, at 505 N. Michigan Avenue. This first National Electronics Conference will emphasize the engineering aspects of electronics and is described as a "national forum for electronic developments and their engineering applications."

Society of Rheology Holds Conference

The Society of Rheology and the Polytechnic Institute of Brooklyn jointly held a conference on "Time Phenomena in Highpolymers" on Saturday, May 20th, at the Polytechnic Institute of Brooklyn, Brooklyn, N.Y.

The speakers were Dr. Robert Simha, assistant professor of chemistry at Howard University, Washington, D. C., who made the "Introductory Remarks" and presided as chairman throughout the meeting; Dr. Turner Alfrey, Monsanto Chemical Company, Springfield, Mass., who spoke on "Molecular Mechanism of Deformation and Flow"; Dr. R. F. Boyer, Dow Chemical Company, Midland, Michigan, who discussed "Transition Phenomena in Highpolymers"; and Dr. Raymond M. Fuoss, General Electric Company, Schenectady, N.Y.,

whose topic was "High Frequency Behaviour of Polymers."

Dr. Herman Mark, president of the Society of Rheology and professor of organic chemistry at the Polytechnic Institute, lead the discussion following the talks.

Dr. Raymond E. Kirk, F.A.I.C., head of the Department of Chemistry at Polytechnic Institute, said that with plastics becoming a household word, the sessions of the Society of Rheology, may very soon give results which may affect the lives of all of our citizens. "Even now," he added, "the public knows that the word 'synthetic' means something better than a substitute."



Foster D. Snell, F.A.I.C., recently addressed the student affiliate of the American Chemical Society, Hofstra College, at its Annual Meeting. Dr. Snell discussed the functions of both the chemist and the chemical engineer in his address, "Opportunities in Chemistry and Chemical Engineering."



The Hercules Mixer, house organ of the Hercules Powder Company, has been awarded third prize in a nation-wide cover contest sponsored by the American Red Cross to promote the 1944 War Fund Campaign.

National Chemical Exposition to be Held in Chicago

The Chicago Section of the American Chemical Society will hold its third National Chemical Exposition on November 15th to 19th, inclusive, at the Coliseum in Chicago. The Exposition is to reveal much that is planned for the postwar era, as well as to express the importance of the chemical industry in the war effort. Authorities on all phases of pure and applied chemistry will appear on the program at the various sessions during the show.

Bigelow Retires

Charles A. Bigelow, vice president, director, and member of the finance committee of the Hercules Powder Company, has retired from active participation in the company's affairs. He became associated with Hercules in 1921.



Dr. Marvin R. Thompson, president of William R. Warner and Company, New York, spoke on "A Neglected Phase of Therapeutics" at a meeting of the New York Branch of the American Pharmaceutical Association, held at the Columbia University College of Pharmacy on March thirteenth. Dr. Thompson's thesis was that the medical and pharmaceutical professions appear to have overlooked other important therapeutic agents since the advent of the sulfa-drugs and penicillin.

Dr. Hazel K. Stiebeling, for the past fourteen years a leading nutrition expert of the Bureau of Human Nutrition expert of the Bureau of Human Nutrition and Home Economics, of the U. S. Department of Agriculture, was recently appointed its chief, to become effective June 30th. She succeeds Dr. Henry C. Sherman, who will return to Columbia University.

Cereal Chemists Meet

The American Association of Cereal Chemists held its thirtieth Annual Meeting at the Nicollet Hotel, Minneapolis, Minnesota, May 23rd to 26th, inclusive. Among the convention's highlights were symposiums on feeds, and protein nutrition, and talks on baking technology, malting and brewing, and analytical methods.



Gustav Egloff, F.A.I.C., director of research of Universal Oil Products Company, Chicago, Illinois, served on the question-and-answer panel, at the annual meeting of the Natural Gasoline Association of America which was held in the Baker Hotel, Dallas, Texas, April twelfth to fourteenth.

The purpose of the meeting was to provide a forum where executives and technical men of the natural gasoline and condensate industries could question the leading authorities on processing, production, and operating trends.

Annual Meeting Reports

Report of the Secretary 1943-1944

I AM pleased to submit this report of the activities of THE AMERICAN INSTITUTE OF CHEMISTS during the season 1943-1944.

The National Council held eleven meetings during the year with an average attendance of ten councilors and officers.

The following actions upon membership were taken:

Elections

Life Member	1
Fellows	169
Members	35
Associates	39
Total.....	244
Reinstated to Fellow membership	11
" " Member "	1
" " Associate "	1
Total.....	257

Loss of Membership Resignations

Fellows	25
Members	3
Associates	1
Total.....	29

Dropped

Fellows	101
Associates	71
Students	2
Total.....	174

Deceased	
Honorary Member	1
Fellows	18
Total.....	19
Total Loss of Membership 222	
Total Increase in " 35	

Actions

Fellows to Life Members.....	6
Members to Fellows.....	3
Associates to Fellows.....	2
Associate to Member.....	1
Student to Member.....	1

Membership

	May 1943	May 1944
Honorary Members	4	3
Life Members	9	16
Fellows	1433	1468
Members	131	163
Associates	210	175
Students	4	1
	1791	1826

Necrology

I regret to make note of the following deaths during the season:

Honorary Member

Leo H. Baekeland

Fellows

Lemuel M. Aycock
Henry Leonard Borg
William H. Butler
M. J. Dorcas

William B. Geiser
H. W. Harper
John Willard Hershey
Arthur J. Hohman
Richard Fay Jackson
Carl O. Johns
E. H. Kessler
Elmer Otto Kraemer
Ralph N. Maxon
Gustave P. Metz
Arie R. Norton
Leicester Patton
Lemuel Charles Raiford
Arthur Anderson Ticknor

Respectfully submitted,

HOWARD S. NEIMAN,
Secretary,

Miss Vera Kimball
American Institute of Chemists
New York, N. Y.

My dear Miss Kimball:—

I am sure that it is unnecessary for me to attempt to express my deep regret that illness has prevented me from exercising my normal secretarial duties, thus placing additional work upon your already overburdened shoulders, but one cannot gamble with Fate.

One of the greatest disappointments of my life is the fact that this year, for the first time in its history, I will be unable to attend the Annual Meeting and Banquet of the INSTITUTE—those most enjoyable occasions upon which I have had opportunities

to meet and mingle with friends among its members.

The strength and stability of an organization is not dependent upon the number of its members but rather upon the number of those who have exhibited a practical and tangible interest in its objectives.

Only live coals and not dead ashes will maintain a furnace fire, and the National Council acted wisely in eliminating from the membership list the names of all those whose interest in the INSTITUTE was not sufficient to induce them to pay their dues.

A survey of the activities of the last year show that notwithstanding the rather large depletion of the membership role due to non-payment of dues, the INSTITUTE has the largest membership in its history and that the number of members elected in that period exceeds the number elected in any of its prior years.

It is not exaggeration, nor does it cast any reflection upon the activity of other members, to state that this remarkable growth of the INSTITUTE, both numerically and in quality, is due to the untiring efforts of President Egloff whose personal enthusiasm has formed several new Chapters and who has carried the "Gospel" of THE AMERICAN INSTITUTE OF CHEMISTS from Maine to California.

Will you kindly extend to the members of the INSTITUTE my best regards and appreciation of their many personal courtesies, assuring them

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that when I am again back on the firing line, I will be pleased to be of every possible service to them personally and to the Institute.

With my highest regards, I am

Yours truly,

HOWARD S. NEIMAN,
Secretary.

Auditor's Report

May 8, 1944.

The American Institute of Chemists
60 East 42nd Street,
New York City.

Gentlemen:—

Pursuant to instructions, I have audited your books and records for the fiscal year ended April 30, 1944 and submit herewith a statement of assets and liabilities as at that date, together with a statement of income and expenses for the year and a statement of cash receipts and disbursements.

Cash in the Public National Bank was verified with the monthly bank statements, and satisfactory vouchers were presented for all items

under audit.

Cash receipts for the fiscal year were sufficient to cover all expenses and it was not found necessary to resort to bank borrowings.

The excess of income over expenses amounted to \$1049.56 and compares with \$1242.73 for the previous year.

Total membership increased from 1791 members to 1826, a net increase of 35, as indicated by the detailed schedule of membership changes.

I hereby certify that in my opinion, the balance sheet submitted herewith, and the related statements of income and expenses, correctly reflect the financial position of THE AMERICAN INSTITUTE OF CHEMISTS on April 30, 1944 and are in accordance with the books and records.

Respectfully submitted,

JACOB A. LICHTENFELD,
Certified Public Accountant.

A copy of the treasurer's report will be sent to Institute members, on request to the secretary.

Report of the Membership Committee

1943-1944

THERE is little to report on the activities of the Membership Committee as a group during the past year, although membership figures indicate that the various members of the Committee throughout the country

have been quite active in bringing in new members.

It should be pointed out that at several council meetings earlier in the year, a total of 174 members were dropped who were more than two

years in arrears in their dues, or who for one reason or another, had lost touch with the INSTITUTE. This action was long overdue and should have been taken, in some cases, several years ago. This decrease in membership has been more than made up, since there was an increase in active members during the year of 257, the largest yearly increase of members which the INSTITUTE has had in any recent year.

The total active membership of the INSTITUTE is now 1826, the largest total of membership which the INSTITUTE has ever had.

While this showing is very encouraging indeed, it is far from the goal which the INSTITUTE may expect, if each member exerts himself to the utmost to tell other chemists about the work of the INSTITUTE and what it means to professional chemists.

The special thanks of the Membership Committee are due to Dr. Robert J. Moore and to President Gustav Eglaff for their untiring efforts in bringing in desirable, active members.

In the opinion of the Chairman of this committee, the most effective means of attaining our membership goal is to have a full-time business manager for the INSTITUTE, who will be in a position to do considerable traveling and organization work in building up new chapters.

The Membership Committee is very gratified to note the formation during the year of five new active chapters, which will most certainly lead to a considerable increase in the INSTITUTE's membership and activities.

Respectfully submitted,

DONALD PRICE, *Chairman*
Membership Committee.

Report of Interrelations Committee 1943-1944

AS Chairman of the Interrelations Committee, I wish to report progress. Questions of resignation from the INSTITUTE came mostly from teachers in the various Colleges and Universities who were compelled to reduce their personal budgets because of a reduction or inadequacy of compensation received. It was the feeling of the Committee that they were cutting at the wrong end when reducing budget expenses and usually

were so informed. After all, their due to the INSTITUTE amount to less than twenty cents per week. In a number of instances your Committee did not even receive the courtesy of a reply, but in other instances, the member thought the matter over again and retained his membership.

It is interesting to note the type of letter received; in this instance from a chemist of very high repute, and connected with one of our largest

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Universities—to quote: "The increased tax burden is forcing me to give up much that I have enjoyed. Owing to the fact that I pay particularly heavy insurance and annuity payments, much greater than average because of certain peculiar reasons, the tax problem has hit me pretty badly. I therefore, regretfully ask to resign from the INSTITUTE."

The reply made to this letter was as follows: "We hesitate to accept your resignation from THE AMERICAN INSTITUTE OF CHEMISTS, as it is the highly professional man that we look to for support in solving those particular professional problems with which our chemists are constantly fac-

ed. I realize that we are faced with many burdens of taxation and other payments, but I have always believed and perhaps you will agree that the small dues payable to the national society is one of the strongest beneficial investments that we as professional chemists can make.

Will you not reconsider the matter and withdraw your resignation. Sincerely yours, A. H. Warth, F. A. I. C., Chairman Interrelations Committee."

We have not yet received the answer.

Respectfully submitted,
ALBIN H. WARTH,
Chairman.

Report of Committee on National Legislation Affecting Chemists 1943-1944

DURING the past year the Senate Military Affairs Subcommittee, headed by Senator Kilgore of West Virginia, held several hearings on S-702, more commonly known as the Kilgore Bill.

There appears to be no immediate likelihood that this bill will be passed on favorably by the Subcommittee of the Military Affairs Committee. The situation seems to be less critical than it was twelve months ago. Nevertheless, it is most necessary that this par-

ticular proposed legislation be carefully watched.

Patents are of direct concern to chemists. During the past year no new legislation has been enacted by Congress, although various subcommittees have considered approximately twenty-five bills relating to the general subject of patents.

Attention of the membership is called to the Report of the National Patents Planning Commission, headed by Dr. C. F. Kettering. It is believed by

your Chairman that this Report will be followed by others by the National Patents Planning Commission. The statement of the National Patents Planning Commission is an excellent resumé and should be read by every chemist.

While no new legislative acts affecting the patent situation have been passed, it is alarming to note the trend on the part of the courts, and par-

ticularly the Supreme Court, to extend by judicial decision a number of distinctly new theories on the subject of patents. Such a trend, unless checked, will have serious repercussions on the basic foundation of United States Patent Law.

Respectfully submitted,

WALTER J. MURPHY,
Chairman.

Annual Report on the Chemist 1943-1944

THE CHEMIST entered the 1943-44 season with a new dress. How did you like it? The new dress was predicated on increasing the advertising lineage. We succeeded in obtaining new advertising, but not in the amount that is potentially possible for an INSTITUTE having in its membership the majority, if not all, of the outstanding chemists in the United States.

The paper belongs to the INSTITUTE but it must be taken out of the so-called "society journal" field in order to attract the lucrative advertising. Such industrial advertising can only be obtained when the articles in THE CHEMIST are written on subjects of nation-wide interest by authors of national reputation in their particular fields. The INSTITUTE has such authors. But, these authors have been busy with war-work that has

prevented them, in a large number of cases, from preparing editorial articles.

THE CHEMIST is planning further improvement in its presentation, and to carry through such an improvement to a conclusive success requires your assistance and by "your assistance" we mean that of every member of the INSTITUTE.

You can make THE CHEMIST the success that you desire it to be by informing the editorial office of the INSTITUTE of subjects that are being discussed within your particular field, and by offering to write on the subject, as well as by submitting items of personal news interest.

T. S. McCARTHY,
Managing Editor.
V. F. KIMBALL,
Editor.

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Report of the Financial Advisory Committee 1943-1944

THE province of the Financial Advisory Committee is not to give a list of figures of the financial transactions of the INSTITUTE for the past year. This the treasurer will do in his report and the certified public accountant who is employed by the treasurer will show an accurate condition of affairs.

During the past year Dr. Hessel so ably conducted the financial affairs of the INSTITUTE that it has been unnecessary to borrow any money to the end of this fiscal year. We have had to do this for a number of years, but this year the treasurer has been able to conduct the affairs successfully and he should be commended for his management.

It must also be borne in mind that through the activities of the president,

Dr. Gustav Egloff, our journal *THE CHEMIST* has been more than self-supporting. Of course, we have had ample finances in reserve at all time to take care of our incidental expenses, and it is to the great credit of the treasurer when you consider that we have had abnormal expenses in furnishing our new office, in paying a higher rental, and in having additional expenses which we did not have last year, but in spite of that we have been making progress.

In view of the conditions of affairs and the ability of the treasurer I recommend that for 1944-1945 it should not be necessary to elect a financial advisory committee.

Respectfully submitted,

MAXIMILIAN TOCH,
Chairman.

Report of the Committee on Licensing of Professional Chemists 1943-1944

THE Committee on Licensing as appointed in the fall of 1942 was carried over in 1943, and with certain resignations, the personnel for the past year is as follows:

Mr. F. G. Breyer
Dr. Raymond E. Kirk
Dr. F. O. Lundstrom
Dr. R. J. Moore

Dr. Donald Price
Dr. N. A. Shepard
Dr. Foster Dee Snell
Mr. M. C. Taylor
Dr. Maximilian Toch
Dr. Gustav Egloff
Mr. Howard S. Neiman
Dr. W. D. Turner.

From the full Committee a sub-

committee was appointed to expedite matters, as follows:

Dr. Donald Price
Dr. Foster Dee Snell
Dr. Maximilian Toch
Dr. W. D. Turner.

This committee has held several meetings and has been in close touch with the situation through frequent correspondence and personal discussions.

The contacts which were made in Albany in the spring of 1943 were further pursued, and several new contacts were made.

It became evident during the fall and early days of the 1944 meeting of the State Legislature that an appreciable upstate opposition was making

itself felt, and at the request of those legislators through whom we were working, the Committee made contact with all those upstate organizations who had expressed unfavorable reaction to the legislation.

The work of converting this opposition into support will be a slow job dependent upon personal contacts, and the Committee is now laying the foundations for personal visits to all centers where opposition is known to exist in the hope that the necessary support can be built up prior to the next session of the State Legislature.

Respectfully submitted,

W. D. TURNER,
Chairman.

Report of the Committee on Pan American Relations 1943-1944

THE Pan American Relations Committee has held four meetings and is planning to present, at some future date, a comprehensive report on the subject. Several more meetings of the Committee will be necessary before this report can be put into a form suitable for general discussion.

The Committee also plans to meet in an informal way with the Pan American Union officials and the U. S. State Department before submitting its report.

Respectfully submitted,
FREDERICK A. HESSEL,
Chairman.

Report of Committee on Constitutional Revision 1943-1944

FOLLOWING the changes made last year in the constitution relative to the membership, there has

been no further business for the committee. Respectfully submitted,
E. H. NORTHEY, *Chairman.*

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Annual Report of the Committee on Ethics 1943-1944

YOUR Committee on Ethics has held itself in readiness at all times throughout the year to consider such matters as might properly be brought before it for study or recommendation.

In general the duties of the Committee on Ethics include the rather unenviable requirement of passing judg-

ment on members who are presumed to have offended our code of ethics.

It is therefore our pleasure to report that no business has been brought to the Committee during the past year and our slate is clean.

Respectfully submitted,
W. D. TURNER,
Chairman.

Report of the Baltimore Chapter 1943-1944

A SMALL group, only five in all, gathered at Loyola College in Baltimore during the month of June 1943, to discuss the prospect of organizing a Baltimore Chapter of the INSTITUTE. This group consisted of Balassa, Darrin, Hanzely, Lamenzo, and Warth. Communications in favor of the formation of a Chapter were received from seven other members. The remaining members in the Baltimore area were seemingly too busy in the War Effort to make reply.

Only one important decision was made at the June meeting and that was definitely to start the attempt of organizing with the required ten members in September, 1943. At the latter meeting eight INSTITUTE members appeared, and the necessary steps taken definitely to form the Chapter. As entertainment, we heard an ex-

cellent talk illustrated by superb colored slides on the subject of "Cork Growing in the South," given by a Dr. Giles B. Cooke.

Those present at the September meeting were Balassa, Bauer, Edmunds, Erdman, Hanzely, Hartung, Kelley, and Warth. Proxies were received from Andrews, Germuth, Lamenzo, Matthews, Siegel, Stein, and Strasburger. A committee to handle the details of organizing was appointed, and A. H. Warth was elected Temporary Chairman, with E. M. Hanzely acting as Temporary Secretary. The results of the meeting and its intentions were submitted to Dr. Egloff and the Council.

Dr. Egloff, as President of the INSTITUTE, formally opened the Baltimore Chapter on the evening of October twenty-eight, delivering a popular

address on "Petroleum in the War," followed by an important message concerning the affairs of the INSTITUTE, and the proposed regimentation of chemists by the Kilgore Bill (S-702). This meeting was attended by the vast majority of the local INSTITUTE members, including Dr. E. Emmet Reid, members of the Chemical Section of the American International Academy, and members of the student body and of the faculty of Loyola College. The lecture hall was well filled. Dr. Egloff had gotten his wires crossed concerning hotel accommodations with some peculiar experiences to relate; otherwise events took place with precision and the Baltimore Chapter started on its way to a formidable organization. Following this meeting the Council awarded the Chapter its Charter.

At a dinner business meeting held at the Northway Apartments, Balti-

more, the following officers were elected: Chairman, Albin H. Warth; Vice-Chairman, Walter H. Hartung; Secretary - Treasurer, Edward M. Hanzely; Council Representative, Maurice Siegel; News Representative to THE CHEMIST, Ralph Lamenzo, covering Dr. Louise Kelley, who had resigned.

The program of the Baltimore Chapter comprehends ten lecture meetings and four business meetings per year. The membership now comprises about sixty chemists from Baltimore, and such counties of Maryland that do not come under the jurisdiction of the Washington, D. C. Chapter. The membership has almost doubled over that of six months ago, and all meetings are now well attended.

Respectfully submitted,
ALBIN H. WARTH,
Chairman.

Report of the Chicago Chapter 1943-1944

THE organization of the Chapter has been along conventional lines with the officers as indicated by our letterhead. In addition, the indicated men were chairmen of the following committees:

Licensing: Dr. A. K. Epstein. Membership: Mr. M. Katzman (Part Time). Patents: Dr. V. Voorhees. Professional Standing: Dr. P. D. V. Manning. Program: Dr. C. L.

Thomas. Publicity: Dr. A. W. Ralston. Student Medals: Dr. V. I. Komarewsky.

The Chapter began the year with 131 members and currently has 139. Fifteen new members have come into the Chapter and seven have left through transfers, resignations, etc.

The Chapter began the year with a testimonial dinner for Dr. Fred C. Koch on October 1, 1943. This was

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held at the Morrison Hotel and was attended by approximately 250. The next meeting was held on December 3, 1943. At this meeting the Chapter voted a mandate to the National Organization to investigate all phases of the possibility of THE AMERICAN INSTITUTE OF CHEMISTS undertaking to bargain collectively for its members. The program for the meeting was entitled "The Chemist Interviews the Employer." The speakers were: F. A. Anderson, Victor Conquest, Tom Coffer, M. T. Carpenter, J. T. Weber and H. H. Pokras. Approximately 130 attended the program.

The next meeting was held on March 3, 1944 on "Unionism and Professionalism in Scientific and Technological Fields" and was addressed by Dr. H. A. Wagner. About 225 attended and the discussion was vigorous.

A meeting is scheduled for April 28, 1944 on "Patent Problems in America" and is to be addressed by Dr. A. A. Potter.

The Annual Meeting is scheduled for June 2, 1944.

Respectfully submitted,
CHARLES L. THOMAS,
Secretary-Treasurer.

Report of Los Angeles Chapter 1943-1944

THE organization of the Los Angeles Chapter was initiated during President Egloff's visit in August, 1943. Although the group is small, it was voted to attempt a professional program in the interest of chemists, and to meet as a Committee of the Whole to show the possibilities of developing a going organization. A chairman and secretary-treasurer were elected and an assessment was made to carry mailing expenses.

During the year seven meetings were held at Clifton's Cafeteria. The main theme has been the study and listing of activities to advance the profession. Discussions have been informal with general participation. Attendance has ranged from ten to twenty-

ty-six. Sixteen members have been active.

There has been one guest speaker, the late Mr. V. H. Hubbard, who was assistant employment manager at Lockheed Aircraft Corporation, and before that a director of public relations for a teachers' organization. He made recommendations on methods of publicizing chemists and the value of a Public Relations Executive—"The articulate group gets results."

From the extensive list of possible activities the following have been set up for definite study: Registry of chemists, list of technical societies, employment, speakers' bureau of supply chemist-speakers, and the Kilgore bill. The registry of chemists in South-

ern California is considered the initial and most important, and basic to succeeding projects. It will be cross-referenced by name, firm, and location. It is estimated that there are 3000 chemists in the area.

The importance of each member individually keeping in touch with the activities of the INSTITUTE has been emphasized continually so that each one may contribute to the new phase

of chemistry, the professional chemist.

Interest in membership is developing. Two new members have been obtained, with several applications submitted and in preparation. The new year is most promising.

Respectfully submitted,
R. J. ABERNETHY,
Chairman.
IMO BAUGHMAN SIMPSON,
Secretary-Treasurer.

Report of the Niagara Chapter 1943-1944

THIS year the Niagara Chapter has been successful in adding ten new members to its roster and has three more applications pending. This represents an increase of about forty per cent in membership and is the first significant growth in our Chapter in several years.

The first meeting was held in Buffalo on October 4th. Dr. Donald Price, vice-president of the INSTITUTE, spoke on the activities of the INSTITUTE. His talk was much appreciated since our knowledge of the recent activities of the national organization had been obtained only through the reports of THE CHEMIST. Plans for the year's activities were enthusiastically discussed. New officers were elected.

The next meeting was also in Buffalo on December 3rd. At this meeting the Chapter secretary-treasurer,

Mr. M. R. Bhagwat, gave a review of the status of the Chapter, discussing certain matters pertaining to the welfare of individual chemists and its relation to INSTITUTE activities. The principal speaker was Dr. Alexander Schwarchman, Director of Research of Spencer Kellogg Company, who gave a comprehensive review of the present state of the vegetable oil industry followed by a very interesting talk on Russia.

There was an executive committee meeting on January third at which a resolution was passed (later confirmed at a meeting of the Chapter) which opposed collective bargaining as applied to chemists.

The featured meeting of the year was in Niagara Falls on January 28th at which time Dr. Gustav Egloff, president of the INSTITUTE, addressed the Chapter and their guests total-

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ing about 150 chemists.

Dr. Egloff reviewed the present activities of the INSTITUTE and pointed to the growth of the organization and especially to the formation of several new chapters. He followed this with a comprehensive and instructive address on the timely subject of "Petroleum in the War and Post-war World."

The next meeting in Buffalo on March 24th was restricted to Chapter members and consisted of a round-table discussion of matters concerned with the professional interests of chemists. Mr. Frederick Koethen led the discussion on the Kilgore bill in

which the restricting influence on the freedom of the chemical profession was brought out.

Dr. Carl Rasch reviewed the information made available to us by Dr. Egloff on the subject of collective bargaining for chemists. The consensus was that the chemist could be helped most by the maintenance of a strong professional position.

There will be one more meeting held in the latter part of May. The program for this meeting will include election of officers.

Respectfully submitted,

MAURICE C. TAYLOR,
Chairman.

Report New York Chapter 1943-1944

AT the beginning of the current Chapter year, the New York Chapter was faced with two chief problems and an unusual set of circumstances.

The two chief problems were, first, increase in membership and, second, development of an attitude and a policy towards the question that has variously been designated as unionization, employee representation, etc.

The peculiar circumstances resulted entirely from the War situation: The most disadvantageous was the fact that the entire membership was so busy with unusual duties and activities that it was difficult to find people both able and willing to carry on the

various duties of officers and committeemen necessitated by Chapter activities. The other noteworthy circumstance was a favorable one, namely a general increase in attendance at meetings, which appears to have been a country-wide phenomenon.

We regret that we were not able to effect as large an increase in membership as we had hoped.

The Chapter continued as in the past few years to operate on a budget plan with considerable success. The detailed story is given in the Treasurer's Report for the current year.

Special credit is due to the Chapter Council and to the Program Committee (Chairman Mr. J. J. Miskel)

for the loyal support given the Chapter and the splendid work done. Council meetings were well attended in spite of the fact that a number of the members had to make relatively long trips to attend.

The action of the American Society of Civil Engineers in pioneering in the field of employee representation by organizing a plan for collective representation of employee civil engineers raised a question which must be of interest to every professional man, namely, whether such organized representation was possible and desirable for him. The National Council of THE AMERICAN INSTITUTE OF CHEMISTS, among other professional organizations, instituted a study of the situation through a special committee. It was felt that it was especially incumbent on the New York Chapter to help this committee by formulating an intelligent and constructive attitude.

Owing to this, it was felt that the meeting programs should be so arranged as to emphasize the broader professional aspects of the chemist's relations with his community, as well as specific technical advances.

During the year the Chapter Council formulated and transmitted to the Committee on Employee Representation of the National Council the Chapter's tentative policy on this subject. The chief features were: (1) Approval of study being made by The Committee; (2) Suggestion that ideal

employment conditions be formulated and published by the INSTITUTE to serve as a yardstick for actual cases.

The Chapter Council also expressed a sense of the need for maximum cooperation rather than contentiousness in professional employer-employee relations, if greatest advantages to both parties are to be realized.

Although chemists may perhaps be fairly charged with being less professionally minded than members of other professions, it is felt that some progress was made in developing this professional sense. It is hoped that this progress will continue in the ensuing year.

Attendance at meetings was unusually high. Although high attendance at professional and scientific meetings has been noted as a country-wide phenomenon in the past year, special recognition is due Mr. Miskel and the Program Committee for their excellent work in arranging the programs and providing facilities for the meetings.

Respectfully submitted,
MARSTON L. HAMILIN,
Chairman.



The Cellulose Products Department of the Hercules Powder Company, Wilmington, Delaware recently announced that the first step toward successful production of a practical flame-resistant nitrocellulose composition has been made.

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**Report of the Washington, D. C. Chapter
1943-1944**

FOUR meetings of the chapter have been held during the year with one more scheduled for April 29th. The meeting place most suitable to the majority of the members was the Wardman Park Hotel and so all meetings were at that location.

November 15, 1943—Mr. J. D. Romaine, the American Potash Institute, showed a motion picture entitled "Potash Production in America." In connection with the film Mr. Romaine traced the development of the Potash Industry in this country since its beginning during the first World War.

January 15, 1944—Dr. Walter J. Murphy, editor, *Industrial and Engineering Chemistry*, addressed the chapter on the topic "This is a Chemists' War." A display of many articles now produced for special war time uses and illustrating the stimulating effect of war needs on chemical research were shown.

March 4, 1944—Mr. H. C. Freimuth, Chemical and Physical Laboratory Federal Bureau of Investigation, explained the work of the F.B.I. in Sabotage cases, poisoning cases, and other crimes that are solved chiefly by special tests in the laboratory. His subject, "The Part Chemistry plays in Crime Detention."

March 23, 1944—Dr. E. L. Luaces, president, Chemical Developments Corporation, Dayton, Ohio,

also chairman, Miami Valley Chapter, A. I. C., was guest speaker. Topic, "Patents and the Public Interest." Some proposed changes in the patent law were discussed. Special reference to the effect of the Kilgore bill on existing patent procedure were also pointed out.

April 29, 1944—Annual business meeting and election of officers.

The rapid growth of the INSTITUTE during the year to ten chapters has been very gratifying. May I take this opportunity to congratulate the officers and members chiefly responsible for this work, and particularly to commend Dr. Gustav Egloff for his accomplishments in this respect.

The student medal awards to Universities in the Washington area have been reduced to four, namely, Catholic University, George Washington University, Howard University, and University of Virginia. Three other schools have asked that the medal not be awarded for the duration of the war due in part to the fact that the courses given are chiefly to prepare men for the army and are not considered to be the equivalent of the regular chemistry courses given in normal times.

Attendance at meetings has been most discouraging, although slightly better than last year. The average attendance varies from fifteen to twenty-five percent of the members in the

Metropolitan area. Now that civilian defense activities and other similar activities are somewhat less demanding on the free time of members our attendance at meetings can be expected to improve.

The financial position of the chapter is sound.

The following committees served during the year:

Advisory: M. S. Anderson, W. H. Ross, C. W. Whittaker.

Membership: F. O. Lundstrom, J. W. McBurney. Professional Standing: J. R. Adams. Publicity: R. B. Deemer. Program: W. L. Hill. Legislation: A. L. Mehring. Student Medal Awards: Carey Dobbs, Miss

Mary Rolland. Collective Bargaining: A. L. Mehring, R. B. Deemer, C. W. Whittaker, W. L. Hill, S. W. Griffin, M. S. Anderson. Reporter to Chemist: S. W. Griffin. Chapter Representative to Council: T. H. Treamearne.

The chairman wishes to express his appreciation for the excellent cooperation and work done by the officers and members of these committees as they have given freely of their time, energy, and thought to the success of the chapter throughout the year.

Respectfully submitted,

LEWIS F. RADER, JR.
Chairman.

Report of the Pennsylvania Chapter 1943-1944

DURING the 1943-1944 season the Pennsylvania Chapter of THE AMERICAN INSTITUTE OF CHEMISTS held six technical and professional meetings. The first five were held in Mitten Hall, Temple University, and the last at the Philadelphia College of Pharmacy and Science. All were preceded by an informal dinner.

A list of the meetings, speakers, and topics follows:

(1) October 26, 1943. Dr. Charles L. Gabriel, vice president, Pablicker Commercial Alcohol Company. "Oxygenate Solvents; Their Growth and Uses in Synthesis."

- (2) November 16, 1943. Dr. Gustav Egloff, director of research, Universal Oil Products Company. "A New Chemical Industry from Petroleum."
- (3) January 25, 1944. Dr. Stanley P. Reimann, director of the Research Institute, Lankenau Hospital. "Chemical Differentiation of Cells as Illustrated by Endocrines and Tumors."
- (4) February 29, 1944. Dr. Raymond E. Kirk, head, Department of Chemistry, Polytechnic Institute of Brooklyn; Chairman, Committee on Unionization of Chemists, National Council, A.I.C. "The Chemist and the Union."

(5) March 28, 1944. Dr. Gilbert E. Seil, technical consultant, Day & Zimmerman. "An Analysis of the Physical and Mechanical Aspects of Combustion."

(6) April 25, 1944. Dr. Ivor Griffith, president, Philadelphia College of Pharmacy & Science. "Research in Pharmacy."

Abstracts of all these addresses have been, or will be published in **THE CHEMIST**.

The average attendance was twenty-five at dinner and fifty-five at the meetings.

The Membership Committee was quite active. Some twenty new members were added to the list during the past year.

At the March meeting the follow-

ing were elected to take office June first; Chairman, Dr. Glenn E. Ulliyot, Smith, Kline and French Laboratories; Vice Chairman, Mr. Harold A. Heiligman, E. J. Lavino & Company; Secretary-Treasurer, Mr. Kenneth E. Shull, Philadelphia Suburban Water Company; and Council Representative, Mr. John M. McIlvain, The Atlantic Refining Company.

The Executive Committee met three times, principally to discuss unionization and collective bargaining for chemists. A proposed policy and plan of action was drafted and submitted in mimeographed form to the members of the Pennsylvania Chapter.

Respectfully submitted,
GLENN E. ULLIYOT,
Chairman.

Douglas Awarded John Wesley Hyatt Medal

Dr. Stuart D. Douglas, head of Plastics Research, Carbide and Chemical Corporation, South Charleston, West Virginia, was presented with the John Wesley Hyatt gold medal, awarded yearly by the Hercules Powder Company, at a luncheon during the annual conference of the Society of The Plastics Industry, at the Edgewater Beach Hotel, Chicago, May eleventh.

The award carries with it a cash gift of one thousand dollars, and was made to Dr. Douglas in acknowledgement of his work with vinyl resins.

The National Roster of Scientific and Specialized Personnel, 1006 U. Street N. W., Washington 25, D. C. urgently requests scientifically qualified men under twenty-six, who are being inducted into the armed forces, to register with the Roster immediately, giving the branch of service they enter, the date and place of their induction, and their serial number.

If, in the future, it is necessary to withdraw scientifically qualified men from the armed forces for research or production work in civilian war industry, the Roster's records will assist the War and Navy Departments to make such assignments.

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April Meeting

A MEETING of the National Council of THE AMERICAN INSTITUTE OF CHEMISTS was held on Friday, April 14, 1944, from four to five thirty o'clock at The Chemists' Club, 52 East 41st Street, New York, N. Y. with vice-president Donald Price presiding.

The following officers and councilors were present: Messrs: F. A. Hessel, R. J. Moore, D. Price, M. Siegel, F. D. Snell, M. Toch, and W. D. Turner. Miss V. F. Kimball was present.

The minutes of the previous meeting were approved.

The Treasurer's report was read and accepted.

Dr. Moore, chairman of the Arrangements Committee for the Annual Meeting, reported progress.

A letter from Dr. Gustav Egloff was read, which discussed the following subjects: The desirability of obtaining a full time executive manager to increase membership. A letter from Dr. R. H. Carr asking reinstatement to membership; an analysis of advertising in THE CHEMIST for the year;

a discussion of the definition of "chemist"; the Chicago Chapter's opinion that the fifth draft of the Committee on Employer-employee relations' report is too weak; a request that the councilors write *Time Magazine* about the small amount of space which it devotes to science; and the information that publicity on Dow with photographs would go out April 15th to over three hundred newspapers and magazines.

The definition for "chemist" was discussed and then referred to the Annual Meeting for comments of other members of the INSTITUTE.

It was suggested that all information concerning unionization of chemists in various locations be published in THE CHEMIST for the guidance of other chemists, and that THE CHEMIST should consider education work along these lines as one of its functions.

A letter was read from the American International Office of Education, and the Council expressed approval of it as a worthy project.

Upon motion made and seconded, the following applicants for membership were elected:

Bussow, Carl

(1944), *Vice-president and Chief Chemist*, A. W. Dow, 801 Second Avenue, New York, 17, N. Y.

Conte, Ernest

(1944), *Chief Chemist*, Mallinkrodt Chemical Works, 232 Westside Avenue, Jersey City, N. J.

Groff, Charles H.

(1944), *Assistant Technical Director*, The Watson Standard Company, 225 Galveston, Pittsburgh, Penna.

Kane, Jasper H.

(1944), *Director of Biochemical Production and Research*, Charles Pfizer and Company, 11 Bartlett Street, Brooklyn, N. Y.

Knauss, C. A.

(1944), *Vice-president in charge of Eastern Technical Service and Development*, Reichhold Chemical Co., Inc., 726 Rockefeller St., Elizabeth, N. J.

Lundin, Harry G.

(1944), *Research Chemist and Analyst*, Pond's Extract Co., Clinton, Connecticut.

Mann, Charles

(1944), *Chief and Professor of Chemical Engineering*, University of Minnesota, Minneapolis, 14, Minn.

Orlando, Anthony J.

(1944), *Owner, Director*, Orlando Research Laboratories, 369-9th Street, Brooklyn, N. Y.

Shuger, Leroy W.

(1944), *Technical Director*, Baltimore Paint and Color Works, 150 S. Calverton, Baltimore, Md.

Stephan, Elmer F.

(1944), *Research Engineer*, Battelle Memorial Institute, 505 King Avenue, Columbus, Ohio.

Wendt, Arthur S.

(1944), *Chief Chemist*, Martin Laboratories, 251 East 139th Street, New York, N. Y.

COUNCIL

Wilder, Richard S.

(1944), *Head of Organic Division, Research Department, Puplicker Commercial Alcohol Company, Philadelphia, Penna.*

Woods, J. Edmund

(1944), *Assistant Professor of Physics, Queens College, Flushing, New York.*

Members

Danforth, Warren B.

(M.1944), *Supervisor, Merck and Company, Elkton, Virginia.*

Ehrmann, Rolfe H.

(M.1944), *83-06 Victor Ave., Elmhurst, L. I., N. Y.*

May Meeting

A LUNCHEON meeting of the National Council of THE AMERICAN INSTITUTE OF CHEMISTS was held on Saturday, May 13, 1944, from twelve to one-thirty o'clock at the Hotel Biltmore, New York, N.Y., with president Gustav Egloff presiding.

The following officers and councilors were present: Messrs. S. R. Brinkley, F. G. Breyer, M. L. Crossley, G. Egloff, H. L. Fisher, F. A. Hessel, F. O. Lundstrom, R. E. Kirk, R. J. Moore, D. Price, J. M. McIlvain, M. Siegel, F. D. Snell, A. L. Taylor, M. Toch, W. D. Turner, and A. H. Warth, Dr. E. L. Luaces. Dr. M. L.

Heiberger, Philip

(M.1944), *Research Chemist, Project Director, Ralph L. Evans Associates, 250 East 43rd Street, New York, N. Y.*

Hofmann, Corris M.

(M.1944), *Research Chemist, Calco Chemical Division, American Cyanamid Co., Bound Brook, N. J.*

Odell, Loren B.

(M.1944), *Research Chemist, Eagle-Picher Lead Company, Joplin, Missouri.*

Raised from Member to Fellow:

Davidson, Emil

(1944), *Clay-Adams, 44 East 23rd Street, New York, N. Y.*

There being no further business, adjournment was taken.

Hamlin and Miss V. F. Kimball were present.

The minutes of the previous meeting were approved. The treasurer's report was read and accepted.

The results of the election of officers were announced as follows: President, Gustav Egloff; Vice president, Donald Price; Secretary, Howard S. Neiman; Treasurer, Frederick A. Hessel, and Councilors: John H. Yoe, Stuart R. Brinkley, and Frank O. Lundstrom.

The definition of "chemist" was discussed briefly and referred to a later meeting.

Dr. Breyer congratulated the Chairman of the Program Committee

for the fine program which was arranged for the Annual Meeting.

A letter from Mr. Neiman, regretting that he would be unable to attend the Annual Meeting this year, was read, and the editor was requested to publish this letter in *THE CHEMIST*. The secretary pro-tem was asked to acknowledge Mr. Neiman's letter together with greetings from the Council.

The matter of pro-rating dues quarterly was discussed, and upon motion made and seconded, this was referred to the Financial Advisory Committee for recommendation.

Upon motion made and seconded, the following new members were elected, subject to the approval of the Committee on Qualifications:

Fellows

Clark, Fred G.

(1944), *Technical Assistant, Development Laboratory*, The Bakelite Corporation, Bound Brook, N. J.

Hofmann, M. P.

(1944), *Chief Chemist*, Bartlett-Snow Company, 6200 Harvard Ave., Cleveland, Ohio.

Jackson, Julius

(1944), *Research Chemist*, Natural Products Refining Company, 902 Garfield Ave., Jersey City, New Jersey.

Kelly, Lloyd E.

(1944), *Sales Promotion Manager, Pigments Department*, E. I. du Pont de Nemours and Company, 256 Vanderpool Street, Newark, N. J.

Klosky, Simon

(1944), *Process Development and Chemical Control*, American Agricultural Chemical Company, 50 Church Street, New York 7, N. Y.

Kovol, Peter

(1944), *District Manager in St. Louis, United Color and Pigment Department*, Calco Chemical Division, St. Louis, Mo.

Mackenzie, Neil M.

(1944), *Assistant Chief Chemist, Organic Research*, Calco Chemical Division, American Cyanamid Company, Bound Brook, New Jersey.

Mayer, Ralph

(1944), *Chemical Engineer War Department*, N. Y. Chemical Warfare Procurement Division, 292 Madison Avenue, New York, N. Y.

Porter, Allen J.

(1944), *Chief Chemist*, Charles R. Long, Jr., Company, Inc., Louisville 10, Kentucky.

For Members

Bartovics, Albert

(M.1944), *Research Chemist*, Firestone Tire and Rubber Company, Plastics Research Division, 52 Courtland Street, Paterson, New Jersey.

Lento, Louis L., Jr.

(M.1944), *Research Chemist*, American Cyanamid Company, Stamford, Conn.

McBurney, Theodore C.

(M.1944), *Analytical Chemist*, Smith Emery Company, 920 Santee Street, Los Angeles, Calif.

Monte-Bovi, Anthony J.

(M.1944), *Chemistry Instructor*, St. John's University, Brooklyn, N. Y.

COUNCIL

Munger, Charles G.

(M.1944), *Chief Chemist, American Pipe and Construction Company, South Gate, Calif.*

Salsbury, Jason M.

(M.1944), *Research Assistant, National Defense Research Committee, Cobb Chemical Laboratory, Charlottesville, Virginia.*

For Associate

McWaters, Lynn S.

(A.1944), *Chemical Engineer, Danneker and Evans, Inc., New Orleans, La.*

Upon motion made and seconded, A. Edgar Kroll was raised from Member to Fellow.

There being no further business, adjournment was taken.

Applications for Membership

Braidech, Mathew M.

Professor of Industrial & Sanitary Chemistry, Case School of Applied Science, University Circle, Cleveland, Ohio.

Grafton, Corydon M.

Director of Research, Cordo Chemical Corporation, Norwalk, Connecticut.

Kurt, O. Edward

Manager of Development Section of Manufacture Department, Ethyl Corporation, Box 341, Baton Rouge 1, Louisiana.

Lobstein, Robert

Consulting Engineer, Banka & Petersen, 450 E. Ohio Street, Chicago, Illinois.

Mackenzie, Charles A.

Research Chemist, Montclair Research Corporation, 4 Cherry Street, Montclair, New Jersey.

Miller, Edward C.

Director of Research & Development, Brown Linseed Company, 2601 Richmond Terrace, Staten Island, N. Y.

Murphy, John A.

Plant Manager, Brooklyn Varnish Mfg. Co., 35 Nostrand Avenue, Brooklyn 5, N. Y.

Neill, William J.

Director of Research, Columbus Metal Products Co., Inc., Columbus 8, Ohio.

Knowles, John T.

Libby McNeill & Libby, Blue Island, Illinois.

Quill, Laurence L.

Department of Chemistry, University of Kentucky, Lexington 29, Ky.

Rostenbach, Royal E.

Technical Assistant, Synthetic Rubber Production Dept., Rubber Reserve Company, R. F. C., Washington 25, D. C.

Sahyun, Melville

Director of Research, Frederick Stearns and Company, 6533 E. Jefferson Avenue, Detroit 31, Michigan.

Schuyten, Hartwig A.

Chief Chemist, New Orleans Office, Pittsburgh Testing Lab., 816 Howard Avenue, New Orleans, Louisiana.

Upson, Willard I.

Director, Analytical Chemists of Cincinnati, 4 West Seventh Street, Cincinnati, Ohio.

West, Charles P.

Director Chemical Lab., U. S. Instrument Company, 421 West 54th Street, New York City.

*For Members***LoPorto, Jack Philip**

1399 Jefferson Avenue, Brooklyn, N. Y.

Lutz, George J.

Professor of Chemistry, Hofstra College, Hempstead, N. Y.

*To be raised to Fellow***Dixon, John G., Jr.**

Chemist, Anaconda Wire & Cable Co., East Eighth Street, Marion, Indiana.

Frishe, William C.

Ass't. Professor Chemical Engineering, Alabama Polytechnic Institute, Auburn, Alabama.

Gorman, Leo Ignatius

Rubber Chemist, Anaconda Wire & Cable Co., East Eighth Street, Marion, Indiana.

Nee, John W.

Director, Roller Coating Lab., Roxalin Flexible Finishes, Inc., 800 Magnolia Avenue, Elizabeth, New Jersey.

Pinkston, John T., Jr.

Research Chemist, Universal Oil Products Co., Riverside, Illinois.

CHAPTERS**Louisiana**

Chairman: D. F. J. Lynch

Vice Chairman: C. S. Williamson, Jr.

Secretary-treasurer, J. David Reid

*Southern Regional Research Laboratory
2100 Robert E. Lee Boulevard
New Orleans 19, Louisiana*

Council Representative, Harold A. Levey

News Reporter to THE CHEMIST, Helen M. Robinson

THE second meeting of the Louisiana Chapter of THE AMERICAN INSTITUTE OF CHEMISTS was held at Loyola University on April seventeenth at 8:30 o'clock. Mr. D. F. J. Lynch, chairman, called the meeting to order. The Executive Committee appointed at the previous meeting submitted a proposed constitution and by-laws and the meeting was largely

devoted to its discussion and ratification.

Mr. Harold A. Levey gave a brief report of the meeting of the Council of the Institute held on March twenty-fourth in New York City.

The Chairman named Miss Helen M. Robinson as News Reporter to THE CHEMIST.

CHAPTERS

Baltimore

Chairman, Albin H. Warth

Vice-chairman, Walter H. Hartung

Secretary-treasurer, Edward M. Hanzely

3816 Kimble Road
Baltimore 18, Maryland

Council Representative, Maurice Siegel

News Reporter to THE CHEMIST, Ralph Lamenz

Chicago

Chairman, Hilton I. Jones

Vice-chairman, H. R. Kraybill

Secretary-treasurer, Charles L. Thomas

Universal Oil Products Company
Riverside, Illinois

Council Representative, Howard Adler

On May 4, 1944, the Chicago Chapter of THE AMERICAN INSTITUTE OF CHEMISTS announced its annual student medal awards to the following: Herbert Wehrmeister, Illinois Technical Institute; George Price,

University of Chicago; Dieter Gruen, Northwestern University; Myron L. Bender, Purdue University; William P. Webb, University of Notre Dame; and Robert C. McClelland, Knox College.

Los Angeles

Chairman, R. J. Abernethy

Secretary-treasurer, Imo Baughman Simpson

638 N. Kenmore Avenue
Los Angeles, California

THE Los Angeles Chapter held its regular meeting, on May 18.

Dr. Glaser, reported on a meeting at the Van Nuys Veterans' Hospital. She found an excellent response to an educational program for the boys there. There is a dire need for books of all kinds. Dr. Glaser start-

ed the work by collecting and sending four hundred books. The boys need speakers to get their minds off their past. It is planned to provide them with speakers and chemical exhibits.

Dr. Salathe reported that he sent notes to the home office for inclusion in THE CHEMIST.

Mr. Henderson reported progress in his program of labor relations.

Mr. Greenhood, is at the Annual Meeting in New York but chairman Abernethy reported progress for him in the work of making a directory of some three thousand chemists in this area.

Chairman Abernethy read a letter from President Egloff requesting lists of all societies including chemists and

chemical engineers.

A long discussion on the definition of a chemist was held.

It was agreed that the election of officers for the ensuing year would take place at the next meeting to be held on June 15th at Clifton's Cafeteria, in Los Angeles.

Further discussion of the Constitution and by-laws took place. The meeting adjourned at 11 p. m.

Miami Valley

Chairman, E. L. Luaces

Vice-chairman, J. M. Purdy

Secretary-treasurer, John R. Fisher, Jr.

Chemical Developments Corporation
314 W. 1st Street, Dayton 2, Ohio

Council Representative, Harvey G. Kittredge

New York

Chairman, M. L. Hamlin

Vice-chairman, Charles N. Frey

Secretary-treasurer, Lloyd W. Davis

E. F. Drew & Company
416 Division Street, Boonton, New Jersey

Council Representative, A. Lloyd Taylor

A MEETING of the New York Chapter was held April fourteenth in the Building Trades Employers' Association club rooms, 2 Park Avenue, New York, N. Y. J. A. Hutcheson, associate director of research, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Penna., spoke on "Electronics

—Its Application to Research and Development." Mr. Hutcheson described various electronic devices, and their operation from fluorescent lights to the use of electronics in spot welding and the control of electrical current for exact power; the electrolytic reduction of aluminum and magnesium; X-ray equipment for metal

CHAPTERS

inspection; television; dehydrating equipment; plastic-molding equipment; plywood lamination; the mass spectrometer, high-frequency heating, and radar. He predicted that the greatest effect of electronics on the peacetime world will be the application of facts which we already have discovered or are using now for purely military purposes.

Prior to Mr. Hutcheson's talk, Dr. Donald Price, vice-president of the Institute, presented the student medal awards of the New York Chapter to the following students: Ralph M. Daniels, Brooklyn College; Richard Steven Urban, Columbia University; Paul J. Blatz, Fordham University; Warern J. Brehm, New York University at University Heights; Charlotte Ressler, New York University at Washington Square; Charles F. Ferraro, Polytechnic Institute of Brooklyn; Ada Frances Friedman, Queens College; and Albert P. Romano, Rutgers University.

The Chapter met on May twelfth at No. 2 Park Avenue, New York, N. Y. for the election of officers for the coming year. The following officers and councilors were elected: Chairman, Marston L. Hamlin; vice-chairman, Charles N. Frey; secretary-treasurer, Lloyd W. Davis; Chapter representative to the National Council, A. Lloyd Taylor. Councilors elected for three-year terms were: C. G. King, E. T. Little, and W. J. Sparks. Councilor elected for a two-year term was Miss Calm Hoke, and councilor for a one-year term, Percy E. Landolt.

Following the business meeting, T. J. Thompson, director of Industrial Glass, Corning Glass Works, spoke on "Wartime Developments in Industrial Glass," and W. S. Thornhill, Market Development Department, Shell Development Company, Inc., spoke on "New Chemicals Manufactured by Shell." These papers will appear in a forthcoming issue of *THE CHEMIST*.

Niagara

Chairman, Maurice C. Taylor

Vice-chairman, Lawrence H. Flett

Secretary-treasurer, M. R. Bhagwat

Mathieson Alkali Works, Inc.

Niagara Falls, New York

Council Representative, Arthur W. Burwell

Alternate, Lothar A. Sontag

Reporter to THE CHEMIST, Frederick Koethen

THE Niagara Chapter met March 24, 1944, at Hotel Westbrook, Buffalo, for dinner, followed by a business meeting at which several matters of interest to the INSTITUTE and to the profession were discussed fully. Maurice C. Taylor presided.

After reading of the treasurer's and secretary's reports by M. R. Bhagwat, Mr. Taylor reviewed recent correspondence with Dr. Egloff, in order to keep members informed on current matters.

The resignation of L. H. Flett, vice chairman, who has been transferred to New York, was laid on the table, as it was felt the election of officers for the coming season would be time enough to elect a new vice-chairman.

It was voted to resume the former practice of collecting \$1.00 per year local dues from Niagara Chapter members, since the treasury had reached a point where new funds are needed.

At the request of the Chairman, F. L. Kothen gave an outline of the

Kilgore Bill and of how it affects our profession. Considerable discussion ensued, apparently all those present being opposed to the bill. It was agreed that since the bill is now in the Military Affairs Committee, no object would be served in expressing our opposition unless and until it comes out of the Committee. If this occurs, members will be asked to send individual letters of protest.

To Carl Rasch was assigned the opening of a discussion on the proposal of the American Society of Civil Engineers to establish themselves as group bargaining agent for their members. The summary was well presented and much interest was expressed by those who spoke later on the subject. Many different suggestions were made, the feeling being that trade union methods are not suitable nor compatible with the professional status of a chemist.

The dinner arrangements were in the hands of Mr. Sievenpiper of the National Aniline Plant.

Pennsylvania

Chairman, Glenn E. Ullyot

Secretary-treasurer, Kenneth E. Shull

23 Bala Avenue

Bala Cynwyd, Pennsylvania

Council Representative, John M. McIlvain

A MEETING of the Pennsylvania Chapter was held in the Faculty Club Room of Mitten Hall, Temple

University, on Tuesday, March 28th.

Prior to this, members and their guests attended an informal dinner in

CHAPTERS

the Faculty Club Room.

The speaker of the evening was Dr. Gilbert E. Seil, F.A.I.C., technical consultant, Day and Zimmerman. Dr. Seil presented "An Analysis of the Physical and Mechanical Aspects of Combustion."

Four primary characteristics of combustion were discussed in detail. These were: (1) The quantity of heat liberated, (2) Flame temperatures, (3) Ignition velocity or rate of flame propagation, and (4) The rate of heat transfer.

The various fuels,—solid, comminuted, liquid, and gaseous, were discussed in relation to the problem of combustion.

Methods were presented of obtaining constant BTU input by control of the pump of a constant displace-

ment pump, and by so-called constant pressure and fixed orifice.

Numerous slides were shown. These illustrated (A) the flame temperatures and the effect of preheat on: 1. Blast furnace gas, 2. Producer gas, 3. Natural gas, 4. Coke oven gas, 5. Coal tar, 6. Fuel oil, 7. Coal, 8. A comparison of flues under ideal conditions, 9. A comparison of flues with 15 per cent excess air, 10. A comparison of flues with 30 per cent excess air.

B. Variation of weight and volume with temperature of products of combustion of fuel oil, C. Heat contents of flue gases, and D. Ignition velocity curves for various flue gases.

A very interesting and actively participated in discussion followed Dr. Seil's presentation.

Western Pennsylvania

President, Henry G. Goodman, Jr.

Vice-president, Henry F. Smith, Jr.

Secretary-Treasurer, Jacqueline S. Front

Mellon Institute of Industrial Research

Pittsburgh 13, Penna.

The Western Pennsylvania Chapter of THE AMERICAN INSTITUTE OF CHEMISTS was formally granted its charter by Dr. Gustav Egloff, President of the INSTITUTE, at a meeting held May nineteenth. The following were elected officers: Dr. Henry G. Goodman, Jr., President; Dr. Henry

F. Smyth, Jr., Vice-President; Miss Jacqueline S. Front, Secretary-Treasurer; and Dr. William H. Hill, Chapter Representative to the National Council. The new chapter promises to be a very active one judging by the interest and enthusiasm displayed at its first formal meeting.

MAY

THE CHEMIST

1944

Washington

President, L. F. Rader, Jr.

Vice-president, L. R. Heiss

Treasurer, T. H. Tremearne

Secretary, Ernest J. Umberger

207 Albany Avenue, Takoma Park, Maryland

News Reporter to THE CHEMIST, S. W. Griffin

Council Representative, T. H. Tremearne

A DINNER meeting of the Washington, D. C. Chapter of THE AMERICAN INSTITUTE OF CHEMISTS was held at the Wardman Park Hotel on March 23rd.

President Rader discussed the advisability of discontinuing the Student Medal Awards for the duration.

Dr. E. L. Luaces, president of the Chemical Developments Corporation, Dayton, Ohio, and chairman of the Miami Valley Chapter, of THE INSTITUTE, spoke on "Patents and the Public Interest."

Many persons do not know what a patent is nor what it means. The most important feature of a patent resides in its significance of exclusiveness. A patent gives you a seventeen years' right to keep other people from doing what you claim to be able to do. The patent system is important in the protection of research, a necessary and often expensive prelude to technical development and distribution. The cost of the research must be advanced by someone against the contingency that profit will be forthcoming from an exclusive control of the tangible fruits, if any, of the concept. He

who bears the burden of research and development costs cannot hope to compete successfully with the imitator who has escaped sharing in these expenses.

One frequently hears the charge of favoritism of the Patent Office towards large corporations. Generally speaking, there is little if any basis in this except in the advantage which the large company enjoys in the more ample research facilities and in its skilled patent attorneys. The record shows that more than seventy-five per cent of the patents are taken out by individuals and small companies. Stifling of research, except that done at public expense, would follow from abandonment of the Patent Office system which, despite its imperfections, offers the chief protection of the poor man and his new and novel concept.



Dr. Emmett B. Carmichael, F.A.I.C., head of the University of Alabama's biochemical department is now editor of *The Journal of the Alabama Academy of Science*.

Lavoisier Commemorated

The American Section of the Society of Chemical Industry jointly with the New York Section of the American Chemical Society held a meeting in commemoration of Lavoisier, "Father of Modern Chemistry," at the Hotel Commodore recently. Dr. Foster Dee Snell, F.A.I.C., chairman of the American Section, presided. Professor Leon Lorties of the University of Montreal's Inorganic Chemistry Department spoke on "The Life of Lavoisier." Mr. Lammot du Pont of E. I. du Pont de Nemours and Company discussed, "Lavoisier, an Estimate."

**Twombly Succeeds Raynolds
in W. P. B.**

W. F. Twombly, chief of the Aromatics and Intermediates Section of the Chemicals Bureau since December 1, 1942, will succeed J. W. Raynolds, Deputy Director of the Chemicals Bureau, who has resigned, according to an announcement by the War Production Board.



Dr. Lloyd A. Hall, F.A.I.C., chief chemist for the Griffith Laboratories, Chicago, Illinois was recently given the honorary D.Sc. degree by Virginia State College, in recognition of his work in food chemistry.

Moore Speaks at Bucknell

Dr. Robert J. Moore, F.A.I.C., director of research of the Bakelite Corporation, spoke recently on "Synthetic Resin Plastics" at a meeting sponsored by three Bucknell student chemical organizations in the Vaughn Literature auditorium of Bucknell University, Lewisburg, Pennsylvania.



Davidson College, North Carolina, formally dedicated its new \$200,000 Martin Science Building on April fourteenth. The new structure honors Colonel William J. Martin, Sr., and William J. Martin, Jr., both former professors of science at Davidson, and the latter for seventeen years its president. President Francis P. Gaines of Washington and Lee University made the dedication speech. During the ceremonies, Major General Norman Thomas Kirk, Surgeon General of the Army, was given the honorary D. Sc. degree.



H. R. Hanmer, F.A.I.C. director of research for The American Tobacco Company, was recently elected the twenty-third president of The Virginia Academy of Science. This is the first time an industrial scientist has been named head of this organization of 900 members. In 1943, Mr. Hanmer was chairman of the Virginia Section of The American Chemical Society.

HERE is the book you've been waiting for!

CHEMICAL MACHINERY

An Elementary Treatise on Equipment for the
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Professor of Chemistry, University of Buffalo,

Author of "Industrial Chemistry"

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New Books on Physical Chemistry

The publication during the seventeenth century of the measured behavior of gases under varying conditions of temperature and pressure, furnished the mathematicians with significant numbers and the philosophers with ideas. Out of them they built a new mathematics and thermodynamics. Similarly, observers reported measurements of other quantities to the delight of the masters of symbols and ideas, until the accumulated and systemized work was built into physical chemistry and its associate, higher mathematics. This work of the mathematicians is an example of mental boot-strap lifting, yielding astonishing transformations and hidden relationships.

The first step on assembly of measured data is to classify and arrange them. Graphic methods will usually show deviation and scattering. For the adjustment of the data to yield a minimum of deviation, the method of least squares was developed.

STATISTICAL ADJUSTMENT OF DATA.

W. Edwards Deming. *John Wiley & Sons.* 261 pp. $5\frac{3}{4}'' \times 8\frac{1}{4}''$. \$3.50.

This book is a further, concentrated treatment, full of mathematical meat, and methods to be used in difficult cases.

From the adjusted data, relation-

ships are established which lead to further generalizations and hypotheses. For instance, the subatomic structure of the chemists' atom, built of discrete particles, has been given an element of uncertainty by the mathematical physicists.

QUANTUM CHEMISTRY. Henry Eyring, John Walter, George E. Kimball. *John Wiley & Sons.* 350 pp. $5\frac{3}{4}'' \times 8\frac{1}{4}''$. \$5.00.

Quantum Chemistry applies the methods of quantum mechanics, in a highly mathematical treatment, utilizing differential equations, vector analysis and group theory. Greatly condensed generalizations lead to predictions of properties, behavior, and course of reactions which are still being tested. More examples and experimental data would add to the value of this book as a reference work.

EXPERIMENTAL PHYSICAL CHEMISTRY. Farrington Daniels, John Warren Williams, and J. Howard Mathews. *McGraw Hill Book Company.* 460 pp. $6\frac{1}{4}'' \times 9\frac{1}{4}''$. \$3.50.

This is a text describing the various methods of measurement with good illustrations of the apparatus. To provide an incentive to interest in

learning, at the close of each experiment is a description of the theoretical and practical value of the test and suggestions for further work. The writing is clear and precise.

PHYSICAL CHEMISTRY. F. H. Mc Dougall. *MacMillan Company.* 722 pp. 6" x 8½". \$4.25.

This is a comprehensive treatment directed toward the systematization of the available knowledge in an academic manner. The structure of the atom and molecules is developed as a logical outgrowth of the results of experiments which are well described. Electrochemical theory and thermodynamics are simply and adequately developed, though with a few gaps which might perplex the student. Treatment of the states of matter, solutions, equilibria, and colloids is adequate.

—JOHN A. STEFFENS, F.A.I.C.

Occupations in Plastics by Max Alpert, published by Occupational Index, Inc., New York University, New York 3, N. Y., gives information on possible postwar employment in the Plastics Industry. Single copies are obtainable for twenty five cents from the publisher.

This is the sixth in a new series of *Occupational Abstracts* covering fields in which postwar employment prospects are favorable. The subscription price for the series is \$2.50 a year.

LANGE'S HANDBOOK OF CHEMISTRY.

FIFTH EDITION. *Handbook Publishers, Inc.* 1777 pp. \$6.00.

The Fifth Edition of Lange's Handbook has the good features of the previous editions, some additions, and unfortunately displays the regrettable tendency of handbooks to become inclusive at the expense of convenience in handling.

On the plus side, we have the use of a simple gothic type which lends itself very readily to legibility, and an unusually good table of organic compounds, containing 6507 entries and avoiding duplication of entries by listing many items which are found in another position in foot notes. The table continues to give a Beilstein reference wherever available, although this is no longer so essential, now, that the indexes have been published.

There is a very fine listing of organic reagents for inorganic analysis which includes literature references.

All of the data carried in the book will be useful to one or another of the ten categories to whom the book is addressed which include chemists, physicists, and so on, to dietitians and manufacturers. From the point of view of the book publisher, it is doubtless an economy to broaden the scope of the book in this fashion. On the other hand, it is time that the users of such books protested against the necessity of having hands like a catcher's mitt to use a handbook.

KARL M. HERSTEIN, F.A.I.C.

Panama Whusky

Thank ye, I'll hae anither. It 'minds me o' a while syne roamin round Panama City ma hands in ma breeks holding ma siller. Losh!! Nae fright cud open ma een wider. A Chinee shop, twa windas o' bottles and mon, sax bottles o' graund auld Glenlivet.

I lookit ower the ither bottles, mon!! nae honest boddie cud mak' thae shapes, nae self respectin whusky wad use skirts an' stays, that sinfu' Chianti; an' Hollands forby, nae clay heathen bottle for me, I want to see mine fu' afore I tak' it; he'vens an' earth, it wad tak'a' night to tell't, the labels oot o' the Toor o' Babel.

Ma throat tremelled ower that Glenlivet, ma een went wee as I lookit up an' doon the bit street bein' Sabbath like, I grabbed ma siller tighter an' went in.

"Tome una cerveza" speers me to the Chinee; a Scot can speer for a drink o' ony kind in ony tongue ye ken. Syne I askit aboot his bottles, no speerin' aboot his Glenlivet, I was itchin' to tak' it, but that Chinee kent whaur ma een wandered.

"El mas grande whiskey del mundo fi' dolla," that's Chinee Spanish, ye ken. He handed me a bottle, I nursed it like a baby but it wudna fit my airm, I kent the cork an' label were a' right but ahint low doon was a wee label o' a chemist chiel I kent, a ween letters after his name, Rideal. The de'il tak' it!!! F.I.C. was spellit F.

J.C.!! I kent that whusky was unholy Sooth American pizen.

What an awfu' po'or has siller to mak' men sinfu', I wasna gangin' to tak' onything frae sic a scoundrel an' a heathen forby. Ma hairt was sair ower that Glenlivet, I askit for a glass o' water, payng for ma beer. Mon, that Chinee was provokit, grabbit the bottle, pu'ed the cork an' poured a dram.

By the sporran o' the great St. Andra. What a reek!! I minded weel where I smellit afore. Ance I was askit to tell what kilt a mon, bein' a chemist chiel, mysel. Weel, I biled an' strained him, whiles he settled I taste for strychnine, it's quicker than science an' saves siller, ootside the twa bottles o' Glenlivet I needed. An' that instant I weel kent he died o' Panama whusky. —E. M. MARSHALL.



Articles scheduled for publication in the September issue of **THE CHEMIST** include, "What is Powder Metallurgy" by Walter J. Baeza, F.A.I.C.; "Patent Problems in America," by A. A. Potter of the National Patent Planning Commission; "Insurance Plants for the Chemical Industry" by Donald B. Keyes, F.A.I.C., "Post-war Chemical Education" by Martin Meyer, F.A.I.C.; "Wartime Developments in Industrial Glass" by T. J. Thompson of the Corning Glass Works, and "Chemical Engineering Applications to Large Scale Manufacture of Vitamins," by C. V. Holland.

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THE CHEMISTRY OF ORGANIC MEDICINAL PRODUCTS—Second Edition

By Glenn L. Jenkins and Walter H. Hartung

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Organizes the large number of organic medicinal compounds according to the accepted scheme of chemical classification.

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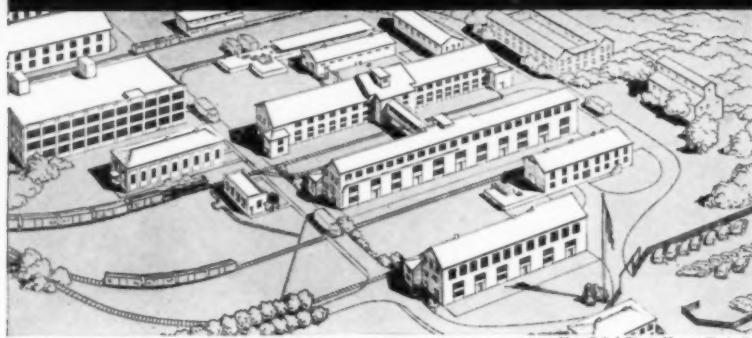
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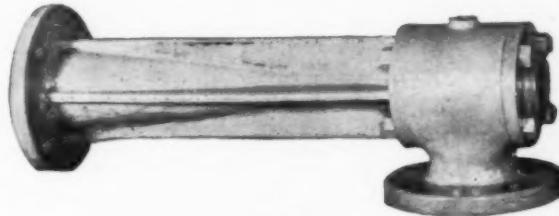
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